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ORIGINAL ARTICLES.

WHAT ARE THE CHARACTERISTICS OF A TRUE CARDIAC TONIC? AND WHAT ARE THE PHYSIOLOGIC DIFFERENCES BETWEEN A TONIC AND A STIMULANT?

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That all morbid conditions, both of function and structure, are deviations from the normal or physiologic conditions of living matter, probably no thoughtful physician will deny. If the proposition is true, then the basis for the study of disease is a correct knowledge of the actual physiology of all parts of the living body.

The more accurate and complete our knowledge of the structure and function of any given part, and its natural relations to all the other parts of a living body, the more readily we can appreciate all deviations from the physiologic standard of action or condition so far as to constitute disease.

If a correct knowledge of the natural or healthy structure and functions of any given living part is the proper basis for studying the departures from that standard of health which may constitute disease, it is equally true that the same knowledge must constitute our basis for determining the action of all medicinal agents. Therefore, if we would clearly appreciate the important characteristics of a true cardiac tonic we must first comprehend the complete natural mechanism and functions of the heart and its physiologic relations to all other parts of the living body of which it is a part.

All lexicographers agree that a *tonic* in medicine is an agent or medicine that is capable of "increasing the strength and vigor of the animal system;" or, as I would prefer to express it, an agent or medicine capable of *increasing the natural functions* of a part or of the whole of the living body. The natural structure of the heart is chiefly muscular, supplied with blood vessels, and apparently three varieties of nerves; and its physiologic function is to aid in the circulation of the blood. Such aid is rendered by the regular rhythmic contraction and relaxation of the muscular structure of the heart by which its cavities are successively filled and emptied in given time and with given degree of force. And it might be claimed that the essential quality or characteristic of a cardiac tonic is such an agent or medicine as would increase the tone and efficiency of the muscular contractions without unduly increasing their frequency. But both clinical and experimental observations have clearly shown that the co-operation of four conditions are essential for maintaining the full normal efficiency of the heart in aiding the circulation of the blood. These conditions are: 1, the natural tone or contractibility of the cardiac muscular structure; 2, the presence of healthy blood or some albuminous fluid of similar composition; 3, the natural sensibility of the three sets of nerves co-operating in regulating the muscular contractions and relaxations of the heart; and 4, the presence of a due proportion of oxygen in the arterial blood or the fluid supplying the left cavities of the heart. If the co-existence of all these conditions is necessary to the continued efficiency of the function of the heart in circulating the blood, it must be apparent that the characteristics of every true cardiac tonic must be both positive and negative. That is, they must be capable of positively sustaining or increasing the efficiency of the cardiac muscular contraction and the sensibility of the several nervous structures, while negatively they must not so alter the constituents of the blood as to impair their oxygen receiving and distributing capacity, nor impair the depth and efficiency of respiration by lessening the sensibility of the respiratory nerve centers, nor so far lessen the sensibility af the inhibitor nerves of the heart as to allow the cardiac contractions to become too rapid or irregular. For any agent that increases the frequency of the cardiac contractions above the natural standard, necessarily leaves less time for the ventricles to fill in diastole, and consequently less blood is sent out by each systolic action and correspondingly less efficiency is given to the whole circulation. This is illustrated in exophthalmic goiter and in all those diseases characterized by marked frequency of cardiac action, and by cutting the vagus or inhibitor nerves of the heart in animals. And this leads us to the exact physiologic differences between a cardiac tonic and a cardiac stimulant. The first increases the tone of the cardiac muscles and the efficiency of their contractions without increasing their frequency beyond the normal; but the latter simply increases the excitability and frequency of cardiac action without necessarily increasing either its force or efficiency. And yet, throughout the greater part of our medical literature, the words tonic and stimulant are often used interchangeably or as synonyms, and nowhere more frequently than in reference to remedies for influencing the heart.

Perhaps no other physiologic fact has been more completely established than that both nerve sensibility and muscular contractibility in living animals are directly dependent upon the presence of oxygen in the blood or fluid circulating in the vessels. Consequently, the continuous oxygenation and decarbonization of the blood is not only essential to the continuance of life, but any diminution of the process below the physiologic or natural standard of health lessens both nerve sensibility and muscular contractile force.

Hence it was stated as one of the characteristics of

a cardiac tonic, that it should not lessen this process of oxygenation, either by lessening the efficiency of respiration or by so altering the constituents of the blood as to lessen their capacity for receiving the oxygen from the pulmonary air vesicles and distributing it through all the tissues. This view has hitherto received far less attention than its practical importance demands. For there are in general use a considerable number of remedies that cause such changes in the blood as to directly lessen the internal distribution of oxygen and lessen nerve sensibility and muscular strength.

A few years since, when it was claimed that the chief danger in all febrile affections was the pyrexia or high temperature, and we were deluged with antipyretics largely consisting of coal-tar preparations, it was soon demonstrated that nearly all of them exerted their antipyretic influence by directly diminishing the reception and internal distribution of oxygen with corresponding cardiac weakness. Then followed the discoveries in bacteriology and the toxic influence of ptomains, toxalbumins, etc., and "heart failure," instead of pyrexia, was proclaimed as the chief source of danger in all the acute febrile and inflammatory affections. So true is that almost every work on the practice of medicine, issued during the past ten years, states in general terms that "progressive cardiac weakness" constitutes the chief danger to life in diphtheria, pneumonia, and nearly all the continued and eruptive fevers. And in equally general terms it is stated that to counteract such cardiac weakness "stimulants should be given early" and freely; often without indicating what stimulants are best or in what doses they should be given. But whenever any particular stimulants are mentioned, pretty uniformly, alcohol, strychnin, digitalis, ether and musk constitute the list. The real cause or causes of the dreaded heart weakness are not well ascertained or definitely stated, and consequently we have no rational or physiologic guide for the choice of remedies.

Two decades since, it was very generally attributed to the pyrexia, but now it is very generally said to depend on the action of the poison producing the disease or, still more, on the "toxic action of the poisons produced in the course of the disease."

And yet, what the poisons thus evolved during the progress of acute febrile affections capable of progressively weakening the heart, are, we are not informed except as they are called leucomains, ptomains and toxalbumins. Neither is it claimed that any of the medicines mentioned as cardiac tonics or stimulants are capable of either preventing the formation, or of neutralizing the action, of these poisons. For one of the most recent and authoritative writers truthfully declares that: "We are still without an agent which can counteract the gradual influences of the poisons which develop in the course of acute febrile diseases."

Perhaps if we keep in view the fact that the living body, in health, is constantly evolving poisons or toxic agents which, if retained in the blood and tissues, as certainly produce general functional disturbances and cardiac weakness as do any of the specific causes of general febrile diseases; and that they are prevented from so doing by the processes of oxidation and elimination, it may point us more directly to the real causes of self-poisoning during the progress of acute diseases, and also to the most efficient remedies. If it is true that a large part, if not all, of the toxic agents or poisons being constantly formed in the healthy body are destroyed by processes of oxidation and leucocytic or cell activity, is it not more than probable that the poisons developed during the progress of febrile diseases accumulate and produce their depressing effects from diminished oxidation and cell activity; such diminished oxidation and cell activity being caused by the action of the primary cause or causes of the febrile disease? Among the most constant symptoms or conditions of acute diseases are, diminished efficiency of the respiratory process through which oxygen is supplied for absorption by the blood, and diminished elimination of the products of oxidation and cell activity. On the other hand, all those agencies that promote the oxygenation and decarbonization of the blood and promote cell activity, correspondingly improve the action of the heart and the efficiency of all the excretory functions. And all those who are at the present time treating febrile affections hydrotherapeutically claim, as the most marked effects of the frequent application of water, whether by spraying, packing or full baths, are increased tone of the cardiac and vascular circulation, with increased cell activity and elimination of the products of internal oxidation. But to gain these advantages there must be also free respiration of fresh air, to furnish the oxygen necessary for sustaining both nerve sensibility and muscular tone, as well as the processes of oxidation. Hence the declaration of M. Robin as the result of his numerous experiments and analyses, that "acts of oxidation are defensive processes of the organism in its struggle with bacteria, and therefore that the physician should favor, in every possible way, the absorption of oxygen in every infection, especially when there are typhoid complications," is one of the most important and far-reaching physiologic and therapeutic announcements on the pages of our current medical literature. It points us to the true pathologic effects of the pathogenic bacteria or their toxic products, in lessening the oxidation processes and cell activity in the blood, and the progressive cardiac weakness on the one hand; and on the other, to the use of such remedies as will either neutralize the toxic products or promote their oxidation and elimination. And to accomplish the latter we must have efficient respiration to supply the oxygen and capacity of the blood to receive and distribute it through the tissues and organs of the body. Consequently, the most efficient remedies to prevent or arrest the dreaded heart failure in all general febrile diseases, are such as directly increase the sensibility and action of the respiratory and vasomotor nerves and promote natural cell or leucocytic and secretory activity. It is very generally agreed that strychnin, digitalis, strophanthus, cactus and convallaria promote the efficiency of both respiration and circulation by their direct action on the respiratory and vasomotor nerve structures, and, at least indirectly, promote cell activity and secretion, while fresh pure air, judicious hydrotherapy and simple nourishment, add still more to the efficiency of the internal processes of oxidation and external excretion. On the other hand, not only nearly all the internal antipyretics, but all the well-known anesthetics, as chloroform, ether and alcohol, directly diminish the sensibility and action of the nerve structures generally and of the respiratory and vasomotor centers especially; and at the same time they equally diminish the leucocytic and cell activity and the processes of oxidation and elimination of toxic products. That the presence in the blood of

either chloroform, ether or alcohol, or of all combined, directly lessens the efficiency of respiration in proportion to the quantity present, impairs vasomotor activity and retards all the metabolic processes, has been so fully proved both by experiments and clinical observation as to need no further proof. On what possible basis, then, can we continue to class alcohol and ether as cardiac tonics or stimulants, in direct connection with strychnin and digitalis, to be given to the same patients on the same days and sometimes at the same hours, when the first two are so directly antagonistic in their physiologic action to the two latter? But my purpose in trespassing upon your time with this brief paper is simply to invite more attention to the fact that a true cardiac tonic must be an agent or remedy that not only increases the tone and efficiency of the heart, but also sustains, at the same time, cell activity, internal oxidations and respiratory and vasomotor nerve sensibility.

DISCUSSION.

Dr. BOARDMAN REED of Philadelphia—I have been much pleased by the paper of Dr. Davis, and especially by the emphatic manner in which he condemns the prevalent abuse of stimulants. Indeed, I have been for years watching with admiration his sturdy battle against this great evil. It seems to me most fortunate that a veteran of his long experience and distinguished ability should come forward as the uncompromising foe of such a crying abuse. Therefore, I regret the more at being obliged to differ from some of the views advanced by Dr. Davis in the paper just read. It seems to me that in discussing the place of alcohol in therapeutics a broad and clear distinction should be made between stimulants and tonics. Alcohol has no claim whatever to be considered a tonic. Indeed, its prolonged use always tends to develop cardiac weakness, as every clinician knows. But as a quick diffusible stimulant in emergencies, it is often a valuable help which we ought not to be deprived of.

Another point not touched on by the writer of the paper is that even drugs which are undeniably cardiac tonics, such as digitalis and strophanthus, may not be depended on to produce their tonic effects when they have been long administered. Experience shows that it is best to alternate these, giving one for a week or two and then changing to another of the group.

Dr. JOHN A. CUTTER of New York—I desire to thank Dr. Davis for his valuable paper. It is not at every meeting that one can learn from so old and careful a student as the reader. My experience with heart tonics is somewhat varied. I can thoroughly agree with Dr. Davis as to the value of proper breathing and fresh air. I have seen a case within an hour of death revive simply by the opening wide of the window and the air pouring in. Again, the use of oxygen or oxygen compounds as prepared by reliable manufacturers is of value in cases of heart weakness. When one considers that in many cases of sickness the blood has become ropy and sticky from an increase of the fibrin filaments, and that the heart's labor is thereby increased by having to pump this self-same blood through the capillaries, which are only one three-thousandth part of an inch in diameter, having a leeway of one forty-eight thousandth of an inch for red blood corpuscles, the value of plenty of drinks of distilled water or water that has but five to ten grains of salt to the gallon can be easily imagined. I make the statement from experience and also as *contra* to some of the teaching in heart therapeutics which obtains at the present, that we should diminish the amount of fluids to diminish the work of the heart. If by giving plenty of fluids we dissolve the fibrin filaments and relieve the stickiness, the heart's labor is greatly diminished. Indeed, in consumption and rheumatism and thrombosis, I have seen the left side to be larger than the right, the heart having increased in size because of the extra work put upon it by this abnormal sticky, ropy blood stream and, after treatment, sometimes within two months' time, the heart is decreased in size and the left chest wall has come down to its normal condition. I consider this fact in medicine, which is known to others, to be one of the most astounding things to be met with because of its inherent value to the human race. Here again, then, drinks of hot water become heart tonics because they relieve the work of the heart. My teacher in medicine, Dr. Samuel B. Ward of Albany, was very positive in advising us students to relieve the liver in cases of heart complaint. It is only a few weeks ago that I found one of my patients in my office, a man who had been a heavy drinker for years, very obese, and who suffered from stone in the kidney and who had been greatly relieved of his obesity and stone formation by careful treatment; the same was complaining of dizziness and on examination of the pulse I found his heart beating along weakly, at times quick and then slow. He admitted that he had been to an Elks' dinner the night before and had drank considerable liquor; he also had been overworking and lifting. Now, you know that in these "weak days" one does not often get hold of a strong robust patient to drug heavily; they all need lifting up. This man, outside of his weakness of that day, was powerful in chest and arms and could stand a rough and tumble fight such as he used to experience in the days when he was a Tweed politician. I said to myself, He is "my meat," and gave him one-twentieth grain of strychnia to steady his nervous system and heart, and three-fourths of a grain of podophyllin and three-fourths of a grain of aloin. I expected that he would report at the office the next morning in a criticising state of mind. Instead of that he came in about noon time, just twenty-four hours after I prescribed for him, as happy and feeling as fine as if he was a boy. The aloin and podophyllin acted on him twelve hours after exhibition and gave him a very liberal unloading of the liver; here again was a heart tonic by detergents. As to digitalis, I could not have eased my wife in the last months of her life without this powerful medicine. She died of heart failure, having a normal but small heart and small cavities in both lungs which had been healed for seven years. For a year or more before her death, she used digitalis in one form or another. I got it all from Frazer's preparations in tablet form and gave digitalin, one-sixtieth of a grain, digitalis powd. one-fourth grain, and digitalis fluid extract one-half minim. I found that the last named was the most powerful of any of the preparations. She had lost her appetite some three years before her death and it was hard work to get nourishment into her. The cough would come on when she was tired, and in the last six or eight months of her life she suffered at times acutely from pain about the heart and down the left arm; I suppose a true form of angina pectoris, although I do not remember of her suffering from the terrible gasping pain, if I may so term it, which sometimes comes in true angina. Nevertheless, the pain in her left arm was severe and she said to me once after using the fluid extract one-half minim tablets, "That must be very powerful medicine to help me." It must be remembered in her case that she had careful nursing, drinks of the best of water and the best of food, as far as she could eat it; hence, she bore the digitalis a great deal better than if she had had no systemic treatment. I give this evidence of the value of digitalis because it was a great friend to her as well as to me.

Dr. A. E. MILLER of Boston—As a rule, heart stimulants are less satisfactory in their results than heart tonics. In many cases where stimulants are administered the heart is already working too fast, and the stimulant increases the difficulty; while heart tonics, as digitalis and nux vomica, in small doses give more power, increase the force and diminish the frequency. This is especially the case in pneumonia and typhoid fever. When stimulants are freely used in these cases the mortality is increased. For several years I have been paying particular attention to the results of alcoholic stimulants in typhoid fever and have noticed that physicians who use alcohol freely lose many of their patients, while those treated without alcohol all recover. I have not known of a single death from typhoid fever for the past twenty years when the patient was treated without alcoholic stimulants.

Dr. HORACE P. MAKECHNIE of Somerville, Mass.—Sometimes when the heart is distended by pain, shock or distress of any kind, either mental or physical, sedatives such as small doses of morphin may act like a cardiac tonic by antagonizing the depressing forces. Has the reader noticed any such effect?

Silver Nitrate and Ergotin in the Treatment of Pulmonary Tuberculosis.—Before the Section in Medicine of the Twelfth International Medical Congress, Dr. Crocq of Brussels (*Progrès Médical*, September 4), maintained that tuberculous disease tended to end in recovery rather than in death, and that a fatal termination was due to an inflammation which led to a propagation of the tubercles. If this inflammation could be prevented or cured, there would be more cases of recovery. According to the author, we have no remedy against the bacillus; creosote does not kill it, and there are some inconveniences about its employment, especially as regards the management of the stomach. He has employed with much success, even in cases that were grave or complicated with diabetes, ergotin and silver nitrate. The latter, he says, acts very beneficially on the stomach.—*New York Medical Journal.*

TRANS-PERITONEAL LIGATION OF THE ILIAC ARTERIES.

WITH REPORT OF SEVEN NEW CASES AND STATISTICS OF TWENTY-NINE OPERATIONS.

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A successful and eminently satisfactory operation for iliofemoral aneurysm having impressed the writer with the ease, accuracy and general superiority of the intra-abdominal or "transperitoneal" method for ligation of the iliac arteries, he has collected the published cases, twenty-two in number, to which, through the generosity of friends, he is able to add six hitherto unpublished cases, making with his own case a total of twenty-nine shown in the table.[1]

Of the twenty-nine cases, twenty-two recovered and seven died. There were twenty-five different operators. Seventeen operations were performed by fifteen American surgeons. All of the priorities as to first operations and first successes rest with the Americans. To this country must also be credited the classic paper of Dennis (*Medical News*, Nov. 11, 1886), which at once placed the procedure upon an enduring basis.

Among the seven deaths, none were attributable to abdominal complications. The only instance of such complication was a partial obstruction of bowels in one case which necessitated reopening of the abdomen on the sixth day, but recovery nevertheless took place. The low mortality is remarkable when it is remembered that many of the cases were partially eviscerated prior to the introduction of the Trendelenburg position which has so much facilitated the operation. It is further remarkable, in view of the many operators and the fact that nine operations were done before 1890. Prior to that date five recovered and four died. Since 1890 seventeen have recovered and but three have died.

Common iliac artery.—Five cases. Of these four recovered and one died. The death was from gangrene. The first operation was by F. Lange, in 1883, and resulted fatally. The second operation and first success was by the same surgeon and in the same year. The three remaining successful operations were by Lucas, in 1889; Thornton, in 1894, and Stevenson, in 1896.

Internal iliac artery.—Nine cases. Of these seven recovered and two died. One death was from nephritis on the sixth day, the other from recurring hemorrhage from a septic wound of the buttock on the thirteenth day. The first operation was by Le Roy McLean, in 1872. It was not successful. The first success was that of Dennis, in 1886. Two were double simultaneous ligations; one by Dennis in 1886 for double gluteal aneurysm, with death from nephritis on the sixth day; the other by Kelly, in 1893, for uncontrollable hemorrhage during hysterectomy for carcinomatous uterus, with a successful result.

External iliac artery.—Fifteen cases. Of these eleven recovered and four died. Two of the deaths were due to subsequent gangrene of the extremity, one to shock and hemorrhage preceding the operation, and the fourth to shock from loss of a "gallon of clots" from an aneurysm which was opened after ligation of the supplying vessel. The first operation was performed by Richardson in 1886, with fatal result. The second operation and first cure was by Stimson, in 1889. Makins ligated the external iliac on one side for aneurysm, in 1892, and upon the same patient a year later performed the same operation on the opposite artery, for a similar condition. The patient recovered also from the second operation.

A considerable correspondence with surgeons of this country and Great Britain has convinced the writer that the general opinion among operators is decidedly in favor of the transperitoneal route for all ligations above the lower portion of the external iliac. When the latter portion can be tied by the old extraperitoneal method it continues to be preferred. But if the disease involves any tissue above Poupart's ligament and, in any case, for higher ligations, almost all are emphatic in condemning the frightful old-fashioned incisions from the groin and loin; some going so far as to exclude the teaching of them from their lectures to students. The Trendelenburg position is a great aid in these operations and does away with the risks of evisceration and strong pressure by retractors that was considered necessary in some of the earlier operations. But neither this position nor injurious pressure are necessary in the average case, although the elevated pelvis undoubtedly renders the procedure more easy. Under scarcely any possible circumstances could evisceration be justified today.

Incision for low ligations should be lateral. The semilunar line has been the favorite site, up to the present time, for the external iliac, but in this case, perhaps, it will be found that the ligation can as well be performed through an adaptation of McBurney's muscle-splitting incision for appendicitis and thus do away with all danger of subsequent hernia. In case of ligation of the internal or common iliacs the median incision has in all cases been found best. Suture of the peritoneum overlying the sheath of the vessels has not been found essential, although probably desirable if the condition of the patient should permit.

CASES HERE FIRST PUBLISHED.

Case 1.—Dr. LeRoy McLean of Troy, N. Y. (Personal communication through Dr. C. B. Herrick.) "In 1872, a female, aged 50 years, received a stab wound in the right buttock, which was followed by profuse hemorrhage. Her attending physician closed the wound with a number of sutures, thereby stopping the bleeding. The same remained closed, but about two weeks thereafter a swelling appeared in the gluteal region, for the relief of which she presented herself at the Troy Hospital, coming into the service of Dr. McLean. He found an aneurysm which, from its location and the situation of the stab wound, he decided to be of the internal iliac artery. He there upon opened the abdominal cavity in the median line, just above the pubes, making a short incision, pushed the intestines aside and coming upon the internal iliac artery, slit through the posterior layers of the peritoneum, and passed a ligature about the vessel by means of an aneurysm needle. The case went well; the abdominal wound healed promptly; no peritonitis or rise of temperature was noted. After about thirteen days the old stab wound suddenly broke out afresh and hemorrhage took place to a considerable amount. Despite treatment directed to the prevention of the same by pressure and ordinary means used over the site of the tumor, the hemorrhage continued from time to time until the patient succumbed through exhaustion."

"Postmortem revealed the artery cut off close to its emergence from the pelvis, and the presence of a good-sized aneurysmal sac. Silk was the material used for the ligation, and chloroform the anesthetic."

Case 2.—Dr. Thomas G. Richardson of New Orleans. (Extracts from letter of Dr. R. Matas of New Orleans.) The patient, an adult male, was brought to the Charity Hospital in the winter of 1886 or 1887, wounded in the thigh high up in Scarpa's triangle. He was much exhausted from shock and hemorrhage. To control bleeding Dr. Richardson made an incision directly over the course of the external iliac, cutting through abdominal wall and peritoneum and secured the external iliac between its origin and Poupart's ligament. The man died some time

[1] One case, No. 29 of the table, has been added since the paper was read.

subsequently, of shock and the effects of previous loss of blood, presumably.

Case 3.—Dr. George R. Fowler of Brooklyn. (Extracts from records of Methodist Episcopal Hospital of Brooklyn.) M. C., aged 16, was admitted to the hospital July 3, 1893, with the following history: About four years prior to admission he suffered from double suppurative inguinal adenitis. The left side was incised; the right opened spontaneously. Shortly after this he noticed that the right lower extremity was larger than the left. This enlargement increased steadily for six months, since which time the relative proportions of the two limbs have remained stationary. He suffers no pain; the inconvenience present is mainly due to the increased weight of the limb. Examination shows the right limb to be the seat of a uniform swelling, as compared with the left. The skin presents the coarse or exaggerated appearance of elephantiasis. The swelling does not pit upon pressure. Measurements: Left, or normal leg; above ankle, 8 inches; at knee, 12; thigh on level with perineum, 16.5 inches. Right, or diseased limb; above ankle, 10.5 inches; at knee, 16; thigh at level of perineum, 21.5 inches. Operation, July 11, 1893. Patient was etherized and placed in Trendelenburg's position. The cavity of the abdomen was opened by a three-inch vertical incision in the right linea semilunaris. The intestines were held back, the external illiac artery identified, the posterior reflection of the peritoneum incised, the vessel isolated and surrounded by a catgut ligature. The vein was found lying to the outer side of the artery. The patient suffered very slightly from shock. The limb was bandaged in cotton and kept elevated. He suffered no inconvenience from the operation and at no time was there sufficient embarrassment to the circulation to cause anxiety. He was discharged cured on August 28, at which time the measurements were as follows: Right calf, 12.25 inches; knee 13.25; thigh, 15 inches. Left calf, 11.25 inches; knee, 12.5; thigh, 15 inches."

Case 4.—Dr. W. Joseph Hearn of Philadelphia. A. B., aged 43 years, was admitted to the Jefferson Hospital in June 1890 suffering from an aneurysm of the popliteal artery. The patient was of slight build and light complexion, a painter by occupation. His general health had been good and he had never contracted syphilis. None of his relatives had ever suffered from tuberculosis. The tumor was the size of a small orange, impeded motion and caused loss of sensation. The femoral artery was ligated with silk, in Scarpa's triangle. From this operation the patient made a good recovery. The tumor gradually subsided and he left the hospital in four weeks, collateral circulation being well established. In August 1893 he returned to the hospital with a pulsating tumor in the left pelvis. He had suffered with some pain and discomfort for three months prior to his again coming under observation. Examination proved the tumor to involve the left external iliac artery, apparently through its entire extent. The size of the mass and the uncertainty as to the length of the artery involved led to a choice of the transperitoneal method. An incision four inches long was made in the left linea semilunaris. The patient being in the Trendelenburg position, by means of broad retractors protected with gauze, it was possible to keep the intestines out of the way and to secure an excellent exposure not only of the tumor but of the aorta, common and internal iliac arteries. Two inches of the external iliac was found uninvolved and, therefore, a ligature was placed upon it just below the bifurcation of the common iliac artery. With two pairs of forceps the postperitoneal membrane was slightly torn over the artery and an aneurysm needle armed with stout silk was passed from within outward. Previous to passing the needle, the grooved director was employed to free the vessel from its attachments. The peritoneum overlying the vessel was approximated by a single catgut suture. The patient made a good recovery. The temperature never passed 100 degrees. He had some distress from distention of bowels and retention of urine, however. Three years later he was in excellent health and able to work at his trade. The left limb was somewhat atrophied and a little weak.

Case 5.—Mr. Frank T. Paul of Liverpool, England. J. E., a man aged 38 years, a gas-fitter by occupation, was admitted to the Liverpool Royal Infirmary June 13, 1895, complaining of a "lump having formed in his right groin." His family history was negative, while his six children were all healthy. He contracted syphilis when 19 years of age, but the only signs of that disorder remaining when he came under observation were evidences of old iritis. Six months before admission he had a "running abscess on the left side of his seat which healed up of itself." One month before entering the hospital he helped to lift a piano and thought that he had strained himself. Ten days afterward he noted a slight pain in his right groin and a few days later observed a swelling. The tumor had not increased in size since he first noticed it and caused very little local pain. On inspection, an ill-defined pulsating swelling could be seen in the patient's right groin, lying in Scarpa's triangle and extending downward three and one-half inches from Poupart's ligament. Its greatest breadth was about two inches. On palpation the tumor was felt to be hard, elastic and pulsating. Its shape was fusiform. Expansile pulsation was very marked and a systolic bruit could be detected with a stethoscope. The heart sounds were normal; the kidneys and other organs were likewise in a healthy condition. On June 17, an incision four inches in length was made from above downward along the outer border of the right rectus muscle, taking care that it was placed well outside the deep epigastric artery. The tissues of the abdominal wall having been divided, the intestines were displaced from the iliac fossa and retained clear of the seat of the operation by a sponge held by an assistant. The position of the external iliac artery became at once apparent and it was very easily ligatured through a small opening in the posterior peritoneum. It was tied with ordinary carbolized catgut and the small opening in the peritoneum over it was closed with two fine sutures of the same material. The artery where ligated was healthy, and there was no bleeding whatever into the peritoneal cavity. The external wound was closed with fishing-gut sutures passed, as usual, through all layers, particular care being taken not to perforate or include the deep epigastric vessels. The limb was wrapped in cotton wool, lightly bandaged with a soft bandage and placed upon a pillow. On June 18 the limb was warm and of good color. On July 2 the abdominal wound was healed and there had been no complications. The aneurysm was hard and no pulsation could be detected in it or in any of the vessels of the leg or foot. On July 12 pulsation had appeared in the dorsalis pedis artery. He was permitted to be up and about. On July 27 he was discharged well, except that there was a slowly diminishing hard tumor in the place of the aneurysm. In January, 1897, the patient was again seen by Mr. Paul, who found that he had increased twenty eight pounds in weight since the operation, and that he was able to work at his trade without any disability whatever. The right leg was then a little weaker and smaller than its fellow and the pulsation in its arteries was not equal to the left extremity. Still this gave him no annoyance, and he was able to put in full time at arduous work.

Case 6—Thomas S. K. Morton of Philadelphia—J. R., colored, aged 48 years, by occupation a waiter, was admitted to the Philadelphia Polyclinic Hospital, April 4, 1895, suffering with a large swelling in the left groin. His family history was negative. When 17 years of age the patient had syphilis and was under treatment a full year. From that time he had remained in excellent health until one year prior to entering the hospital. Then, a short time after straining himself in lifting a heavy piece of iron, he noticed pain and tumefaction in the left groin. The tumor had steadily enlarged. It was the size of an orange and situated mostly below Poupart's ligament in the line of the common femoral artery. Above the latter ligament there was also a considerable expansion of at least one inch of the external iliac artery. The growth presented all of the signs of aneurysm. The leg on the affected side was quite edematous. The man was put to bed with the left leg slightly elevated and instructed to stop the circulation through the aneurysm occasionally, by pressure upon the external iliac through the abdominal wall. In doing this he was very successful. On April 8, under ether anesthesia, a four-inch-long median abdominal incision was made below the umbilicus. A strong retractor was introduced upon the right side of the wound and the intestines held away from the vessels on the left side. The external iliac artery and vein were then readily brought into view and identified. The peritoneum overlying the sheath was divided with knife and forceps to the extent of one inch. Then an aneurysm needle was carefully insinuated between the artery and vein, carrying through a single loop of silk. By means of the loop, three strands of medium size silk were carried around the artery without any especial trouble. Everything and every manipulation was in plain view throughout. The three strands of silk were next tied down one by one upon the vessel, after the manner of tying what Ballance and Edmunds have termed the "stay" knot, that is, each ligature is double twisted and tied firmly down for the first tie; the second tie is made from the three or more ends on each side tied down as if one strand. This gives a certain occlusion of the vessel by bringing a considerable extent of its walls into firm contact.[2] The site of the ligature was about three quarters of an inch below the bifurcation of the common iliac. The peritoneum over the ligature and sheath was not sutured as it naturally fell together along its divided edges. The

[2] Ligation in Continuity by Ballance and Edmunds, London, 1891.

Number	Surgeon and date of operation.	Reference.	Sex, age and color.	Disease.	Incision.	Vessel Ligated.	Material of Ligature.	Treatment Peritoneum over sheath.	Complications.	Result.	Remarks.
1	W. F. Stevenson, 1896	Lancet, Jan. 26, 1896, p. 224.	M 35	Diffuse aneurysm, external iliac and common femoral.	Median 1 inch below umbilicus to 1½ in. above pubis.	Common iliac.	Silk.		None.	Cured.	Later, incision into aneurysm and clots, 2½ pounds, turned out.
2	F. Lange	Trans. N. Y. Surg. Soc. 1883.	M About 40	Large aneurysm above Poupart's ligament. Locomotor ataxy.	Median.	Common iliac left.				Cured.	
3	F. Lange	Personal Communication.	M About 60	Large aneurysm above Poupart's ligament.		Common iliac left.			Gangrene of extremity and sepsis.	Died.	High amputation of thigh for gangrene.
4	R. C. Lucas, 1889	British Med. Jour., Nov. 5, 1892, p. 1033.	M	Aneurysm external iliac.	Median.	Common iliac "performed with ease."			None.	Recover'd.	
5	J. K. Thornton	British Med. Jour. Feb. 29, 1896, p. 513.	M	Aneurysm external iliac artery Traumatic left.		Common iliac artery.	Silk.		Great amount abdominal and omental fat.	Recover'd.	Tied by touch, not seen.
6	Le Roy McLean, 1872	Personal Communication by Dr. C. B. Herrick.	F 50	Aneurysm right external iliac artery following stab wound of buttock.	Short, median "just above pubes."	Internal iliac (right)	Silk.		None in abdomen or abdominal wound.	Died.	Recurring hemorrhage thro' stab wound of the buttock. Postmortem: Artery cut off close to emergence from pelvis. "Good size aneurysmal sac."
7	Frederick Treves	Lancet, June 4, 1892. p. 1244.	M 18 W	Sarcoma of buttock.	Median.	Int. iliac "an extremely simple matter."			None.	Recover'd.	Remarkable shrinkage of growth and diminution of pain. Able to walk for 10 mos. Died in 14 mos.
8	L. L. Williams, Sept. 3, 1891	New York Medical Jour., Aug. 20, 1891, p. 211.	M 35	Gluteal aneurysm left.	Median, umbilicus to pubic bone.	Int. iliac left.	Silk.		None.	Recover'd.	Died of heart disease 10 weeks after operation.
9	George Wherry	Lancet. Vol. II, 1893, p. 136.	M 21	Sarcoma—pulsating—upon upper posterior and outer part of left innominate bone.	Median.	Int. iliac, artery and vein, left.			Much swollen vein.	Recover'd.	Tumor shrank, pain much less, no pulsation.
10	Thomas Anandale, Oct. 1, 1893.	Edinburgh Hospital Reports, 1894, p. 513.	M 22	Wound gluteal artery, septic. Repeated hemorrhages, left.	Linea semi-lunaris, left 5 inches	Internal iliac.	Catgut.		None.	Recover'd.	
11	H. A. Kelly, Oct. 1893	Bull. Johns Hopkins Hospital, April, 1894, p. 53.	F 37	Hemorrhage during extirpation carcinoma uterus.	Median.	Both internal iliac arteries.			None.	Recover'd.	No carcinoma observable up to time of publication.
12	F. S. Dennis, Feb. 18, 1886	Medical News, Nov. 24, 1886, p. 565.	F 60	Double gluteal aneurysm. Spontaneous.	Median, umbilicus to pubes.	Both internal iliac arteries.	Catgut.		Little pus about one ligature, no peritonitis.	Died 6th day.	Intestines taken outside abdomen, suppression of urine, chronic nephritis.
13	W. L. Chew, June 15, 1886	Medical News, Nov. 29, 1886, p. 565.	M 46 C	Diffused aneurysm spontaneous gluteal right.	Lateral.	Int. iliac right.	Silk.	"Approximat'd"	Small stitch hole abscess.	Recover'd.	Intestines taken out of abdomen.
14	F. S. Dennis, Sept. 8, 1886	Medical News, Nov. 29, 1886, p. 565.	F 18	Gluteal aneurysm and aneurysmal varix, spontaneous, left.	Median above umbilicus to 2 in. above pubes.	Int. iliac left.	Catgut.		Much fat in abdominal wall. Acute albuminuria (15 per cent.) after operation for few days.	Recover'd.	Intestines removed from abdomen.
15	N. P. Dandridge, Oct. 1896	Med. News, April 3, 1897, p. 430.	M 39 C	Aneurysm left groin 5 in. long 3½ in. broad. Occupied Scarpa's triangle. Reached upward to Poupart's ligament and outward to spine of ilium, also had invaded iliac fossa.	Trendelenburg position 4 in. median.	Ext. iliac (left).	Kangaroo tendon.	Sutured with fine silk.	None in abdomen or abdominal wound.	Cured.	Sac opened by 6 in. incision and emptied. Had ruptured. One-third sac dissected out. Much bleeding from below. Ligatures to vessels. Iodoform gauze packing. Sloughing and tedious healing. No sensation anterior portion thigh. Inability to extend leg upon thigh.
16	Frank T. Paul, June 17, 1895	Personal communication.	M 38	Aneurysm Scarpa's triangle, right side. Extended 3½ in. downward from Poupart's ligament. Two inches in breadth.	Four inches along outer border right rectus muscle.	Ext. iliac "very easily ligatured."	Carbolized catgut.	Suture fine carbolized catgut.	None.	Cured.	Result perfectly satisfactory.
17	T. G. Richardson, 1886 or 1887	Personal communication by Dr. R. Matas.	M Adult	Wound high up in Scarpa's triangle.	Directly over course of external iliac.	External iliac.				Died.	Shock and previous hemorrhage caused death shortly after operation.
18	Geo. R. Fowler, July 11, 1883	Personal communication.	M 16	Elephantiasis right leg from groin downward following suppurative inguinal adenitis.	Trendelenburg's position, 3 in. incision right linea semi-lunaris.	External iliac "easily carried out."	Catgut.		None.	Cured.	
19	L. A. Stimson, April 2, 1889	Trans. N. Y. Surg. Soc., April 24, 1889.	M 36	Ilio-femoral aneurysm, right side. Extended from one inch above Poupart's ligament to five inches below. Three and one-half inches in transverse diameter.	Longitudinal along outer side rectus muscle.	External iliac.	Catgut.		None.	Cured.	
20	W. Joseph Hearn, 1893	Personal communication.	M 43	Aneurysm external iliac artery, left.	Four inches left linea semi lunaris Trendelenburg's position.	External iliac, "comparatively easy."	Silk.	Single catgut suture.	None.	Cured.	Well 8 years later. Previous successful ligation common femoral for left popliteal aneurysm.
21	J. R. Roberts, Jan. 6, 1894	Annals of Surgery, Vol. 22, 1895, p. 872.	M 26 C	"Sacculated arterio-venous fistule" of the right thigh from gun-shot wound.		External iliac.	Silk.	Catgut suture.	Gangrene of extremity.	Died.	
22	Rudolph Matas, June, 1892	New Orleans Med. and Surg. Jour. Oct. 1894.	M 28 C	Traumatic aneurysm (old gun-shot wound) common femoral right, filling iliac fossa.	1½ in. median. Trendelenburg's position.	Ext. iliac, mid way between bifurcation and Poupart's	Silk.		None.		
23	Makins, Sept. 20,	Lancet, Dec. 10, 1892	M 20						Hiccough, "no signs of peritonitis," fixed	Died.	Postmortem: Abdominal conditions satisfactory, no exu-

	Surgeon.	Date.	Reference.	Sex.	Age.	Color.	Traumatic aneurysm. Cold gangrene.	Ligation.	Sutures.	Silk.	Catgut suture.	Gangrene of extremity.	Died.	Remarks.
20	Rudolph Matas	New Orleans Med. and Surg. Jour. June, 1892		M	28	C	Traumatic aneurysm. Cold gangrene. Shot wound of common femoral right, filling iliac fossa.	Linea semi lunaris Trendelenburg's position.	Ext. iliac, mid way between bifurcation and Poupart's ligament.	Silk.	None.	Hiccough, "no sense of pain in toilette," lived 6 days.	Died.	Postmortem: Abdominal contusion and laceration. Extravasation into extraperitoneal tissues to the extent of a gallon of clots. Aneurysm contained a gallon of clots.
20	Makins, Sept. 20, 1892	Lancet, Dec. 10, 1892, p. 1325, also Ibid., 1893, Vol. II, p. 196.		M	30		Aneurysm external iliac and common femoral.	Linea semi-lunaris, beginning 1 in. below umbilicus.	Ext. iliac, considerable difficulty from fat and enlarged epigastric and spermatic vessels.	Silk.	Sutured.	None.	Recover'd.	See also Case 26.
21	J. B. Roberts, Jan. 6, 1894	Annals of Surgery, Vol. 22, 1895, p. 872.		M	25	C	"Sacculated arterio-venous fistula of right thigh from gunshot wound."	Linea semi lunaris Trendelenburg's position.	External iliac, left.	Silk.	Catgut suture.	Gangrene of extremity.	Died.	Successful ligation common femoral for left popliteal aneurysm.
24	W. Michell Banks, Sept. 26, 1892	British Med. Jour., Nov. 26, 1892, p. 1163.		M	62		Aneurysm Scarpa's triangle and iliac fossa.	Linea semi-lunaris 3 inches.	External iliac, "nothing could have been more simple."	Carbollzed catgut.	Catgut suture.	Temporary cyanosis on 11th day. Otherwise none.	Recover'd.	
25	T. S. K. Morton, April, 1895	Here first reported.		M	48	C	Ilio-femoral aneurysm, left.	Median, 4 in. below umbilicus.	Ext. iliac, left midway bifurcation to Poupart's ligament.	Silk, 4 strands, Ballance and Edmunds' "stay knot."	None.	None.	Recover'd.	Still well, useful limb.
26	Makins, May 3, 1893	British Med. Jour., Nov. 30, 1895, p. 1360.		M	34		Aneurysm external iliac and common femoral.	Linea semi-lunaris.	External iliac.	.....	.....	None.	Recover'd.	Same man as Case 23, 8 mos. later opposite side.
27	W. H. Brown, Sept. 25, 1892	Lancet, Vol. II, 1893, p. 31.		F	38		Aneurysm femoral, double, 1st, in right groin extending above Poupart's ligament; 2d, in middle third.	Median, umbilicus to pubes. Trendelenburg.	Ext. iliac, right, much difficulty because of extreme obesity of abdominal wall and omentum.	.....	.....	Stitch hole abscess. Gangrene of leg.	Died in 11 weeks.	Amputation thigh. Exhaustion.
28	John C. Davie, Jan. 9, 1891	British Med. Jour., April 11, 1896, p. 924.		M	32		Aneurysm left external iliac artery.	Trendelenburg. Median, 2 in above umbilicus to 1 in. above pubes.	External iliac.	Ox aorta.	.....	Intestinal obstruction, Incomplete. Wound opened on 6th day kink in small intestine.	Recover'd.	Well 4 years later.
29	W. H. Brown.	Lancet, Oct. 23, 1897, p. 1047.		M	45		Aneurysm at junction femoral and external iliac, size hen's egg.	.....	External iliac.	.....	.....	.....	Recover'd.	"Complete recovery."

entire extremity was done up in thick layers of cotton batting after the abdominal incision had been closed by storied sutures. External heat was also applied to the limb for forty-eight hours. It was kept slightly elevated. The leg remained slightly cold and numb for twelve hours, but then warmed up and full sensation returned. Recovery was without rise of temperature or any complication. Good collateral circulation was present in the tibials within two weeks, at which time he was permitted to sit up and gradually get about. The tumor in the groin gradually shrank and was no larger than a hen's egg in six weeks. At the present time (June, 1897) the man continues in the best of health. There is little more than a heavy fibrous cord in the groin, excellent collateral circulation, and absolutely no interference with the motions and utility of the affected side. The abdominal incision shows no sign of weakness.

Case 7.—Dr. Frederick Lange of New York.—Man, aged 60 years; large aneurysm above Poupart's ligament involving external iliac artery on the left side; ligation of left common iliac artery by transperitoneal route; subsequent gangrene of leg; high amputation of thigh; death.

MELANOSARCOMA OF THE CONJUNCTIVA, WITH THE REPORT OF A CASE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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CLEVELAND, OHIO.

Mr. G. of Cambridge Springs, Pa., aged 69 years, was first seen in March, 1888, with a dark purplish lobulated tumor of the left eyeball, about three quarters of an inch in length, one-half inch in breadth and about one-half inch in thickness, springing from the ocular conjunctiva on the nasal side. The tumor was first noticed about one year previously as a small dark spot. There was no history of traumatism.

There was diplopia when looking to the right, owing to the tumor preventing the eye rotating in that direction. There was slight haziness of the lower part of the cornea, probably due to the imperfect closure of the lids, but otherwise vision was good. A fairly satisfactory ophthalmoscopic examination was possible, revealing a healthy fundus. The tumor was slightly movable, but I was uncertain whether or no it was adherent to sclerotic or deep orbital structures. There was no pain and the patient refused to have the tumor removed.

During the next three months the tumor grew rapidly and began to fungate and bleed frequently. During the early part of June there were two or three hemorrhages, which were controlled with great difficulty by compress bandages. It was only after becoming thoroughly alarmed by these hemorrhages that the patient consented to have the tumor removed, which at this time presented an ugly, black mass, filling the palpebral opening and completely covering the eyeball.

Ether was administered and every precaution taken to control excessive hemorrhage, and preparations were made for extensive dissections of the orbit together with the sacrifice of the eyeball. Indeed, a formidable operation was anticipated, but much to our surprise, the tumor was found to be pedunculated, very superficially attached to the conjunctiva, and removed easily with the forceps and scissors with very slight hemorrhage, leaving a perfectly clean wound of the conjunctiva which was partially closed with sutures. The wound healed kindly but was followed by a slight entropium, owing to the cicatrical contraction. This

was relieved by an operation one year later. The patient was seen three years after the operation, vision perfect in both eyes, no recurrence of tumor and general health excellent.

The tumor removed was the shape and almost the size of a hen's egg, hard and black, round and smooth, excepting on the larger fungating end. Dr. Chr. Sihler, professor of histology in the medical department of the Western Reserve University, examined the tumor microscopically and pronounced it a small celled melanosarcoma with much pigment.

Mr. Gerrish died September, 1893, five years and three months after the tumor was removed from his eye. An autopsy was held by Dr. W. N. Young, together with the assistance of several physicians of Cambridge Springs, Pa. Death was due to a large cancerous growth of the liver, probably melanosarcoma.

It seems as though there should be no difficulty in distinguishing these conjunctival tumors from intraocular ones which, having penetrated the sclerotic, present externally. Unlike some of our mistakes, this may prove disastrous to our patient. Few would object to the removal of the tumor if assured that the eyeball need not be sacrificed. I fell into this error and only recognized my mistake during the operation. In the light of my present experience the error seems almost inexcusable.

Several cases of non-pigmented sarcoma of the conjunctiva have been reported, but they are probably much less frequent than the pigmented tumors. The sclerocorneal limbus seems to be a not very infrequent location for epithelial cancers. They are usually non-pigmented, sessile, flat tumors of slow growth with an early tendency to ulcerate.

The melanotic sarcoma of the conjunctiva, like the epithelial cancer, is peculiar to old people, although a few have been reported in young persons. Carcinomatous growths of the conjunctiva have been recorded by a number of writers, and may or may not be pigmented. Indeed, the statement of "Noyes[1] that the occurrence of pigmentation is a feature entirely incidental and not essential to the growth of the tumor seems probable." Although melanotic tumors of the conjunctiva are comparatively rare, I am inclined to think they are more common than the literature of the subject would lead us to infer.

Walton[2] states that in three cases in which he removed the eyeball for a chronic fungus state of the conjunctiva, he found upon dissection the coats and other parts of the eye to be quite unaffected and in their natural state.

Travers[3] gives a beautiful illustration of a case in which he performed abscission of the anterior portion of the eyeball.

Dr. Jacob[4] reports a case of a black, spongy tumor, two inches in diameter, overlapping the eyelids in all directions so as to nearly close the whole opening of the orbit. It appeared to be attached to the eyeball with a cylindric stalk which was slightly enclosed by the eyelids. Being prepared to remove the contents of the orbit, if necessary, Dr. Jacob drew his knife across the stalk as a preliminary operation, and found that he had incised a healthy eyeball, the disease being confined to the conjunctiva. The divided eyeball healed kindly. The subsequent history of the case is not recorded.[5] Cases have been reported in more recent literature in which the eyeball has been unnecessarily sacrificed.

These melanotic tumors of the conjunctiva seem to present an exception to the general surgical principle in malignant growths, that the dissection should be made as distant from the tumor as possible. It is not impossible that these cases may occasionally result in spontaneous cure.

Some time since, Dr. A. P. Ohlmacher[6] presented to the Cleveland Medical Society two specimens taken postmortem from a man who had had trouble with his eye four years before the liver trouble, from which he died, began. The duration of the liver trouble was about one year. The relation of the enlarged liver to the eye disease was suspected by the physician in charge of the patient, but it was thought to be echinococcus disease, and an operation was undertaken to remove the suspected hydatids. The interior of the eye was occupied by a small black tumor which showed, on microscopic examination, all the characteristics of melanotic sarcoma. A curious feature, says Dr. Ohlmacher, of this growth is its tendency to atrophy and shrink with the eyeball instead of increasing in size and breaking through the eye, as is usually the case. A line of pigment along one side of the optic nerve probably marks the route by which the tumor germs escaped from the eye to produce the metastatic infection. The liver with the metastatic, melanotic sarcoma weighs fifteen pounds.

Dr. Mathewson reported a case somewhat similar in the "Transactions of the Amer. Ophthal. Society" in 1874. Dr. Mathewson's case subsequently died, melanotic tumors appearing over the entire surface of the body, as well as in the internal organs.

Dr. Randall[7] observed a case in Jaeger's clinic, a large pedunculated tumor, apparently tending toward spontaneous recovery.

In my case the pedicle was so small, in comparison with the size of the tumor, that it might have been possible for the entire growth to have dropped off from its own weight, and the pressure of the lids upon the pedicle behind it. At least a slight twist so as to cut off the circulation might have accomplished this result, yet these tumors may grow to an immense size.

Mr. Abernathy[8] refers to a curious case of a sarcomatous tumor of the conjunctiva which did not involve the cornea, which was clear and transparent. The tumor pushed out between the eyelids and was seven inches long, three and one-half in circumference, and weighed when extricated two and one-half pounds. More information as to the subsequent history of these cases would be of great interest. This might be a good subject for collective investigation.

There seems to be great indefiniteness as to how frequently and how soon recurrence of melanosarcoma of the conjunctiva may occur, and in what proportion metastasis may be expected after removal. De Wecker[9] intimates that we should be extremely cautious about operating on these tumors. He says cases have remained absolutely stationary for twelve or even twenty years, while if operated on they sometimes recur with fearful rapidity, or what is perhaps worse, undergo metastasis. If convinced that general infection is not immediately imminent, he advises enucleation of the eye at once; but no such operation should be ventured on if previous attempts have already produced a return of the disease *in situ*, or if the blood is contaminated. In that case metastasis will happen almost to a certainty.

As an illustration of the difference of opinion held by members of the profession as to the question of metastasis, Strause[10] offers as one of his conclusions:

"Metastasis practically never occurs." The latter conclusion does not seem to be warranted by the history of these cases as recorded by many observers.

Fuchs[11] reports a case of typical melanosarcoma that was first excised in 1879. In May, 1886, it returned on the opposite side of the cornea of the same eye. It was again removed and returned. In September of the same year the eye was enucleated, and six months later it returned in the bottom of the orbit. Complete exenteration of the orbit was then performed. The patient died from extension of growth to internal organs in February, 1890.

Cases dying from metastasis have also been reported by Ole Bull[12] and others.

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1 Noyes: Archives of Ophthal., vol. viii, p. 145.
2 Walton: Practical Treatise on Dis. of Eye, 3d Ed., 1875, pp. 140 to 149.
3 Travers: Synopsis of Dis. of the Eye, 3d Ed., 1824, Fig. 2, Plate 2, p. 102.
4 Dublin Medical Press, Nov. 30, 1842.
5 Archives of Ophthal., vol. xviii, p. 163.
6 Ohlmacher: Cleveland Jour. of Med., March, 1897, p. 141.
7 Trans. Amer. Ophthal. Society, 1886.
8 London Reports, 1811, Surg. Observ. on Tumors, etc., p. 43.
9 Ocular Therapeutics, p. 101.
10 Archives of Ophthal., April, 1897.
11 Fuchs: Text-book on Ophthal., 1895, p. 119.
12 Archives of Ophthal., vol. xviii, p. 168.

THE SURGICAL TREATMENT OF TRACHOMA.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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The scope of the present paper will not admit of a review of all of the operative procedures that have been and are now employed in the treatment of trachoma, even if it were desirable. I shall, therefore, mention but few and, as I believe that a discussion of methods employed by the individual speakers here is more suitable and will be more profitable to those present, I shall conclude by describing the method that I find most generally useful.

Viger (*Annal. d'Oculistique*, 1892, p. 175) scarifies horizontally and transversely and brushes in a solution of sublimate, 1 to 500. He then applies compresses dipped in a hot solution of sublimate, 1 to 5,000. The after-treatment is by daily applications of sublimate solution, 1 to 500.

Armaignac (*Annal. d'Oculistique*, Vol. cx, p. 121) employs a method which he terms "Tattouage médicamenteux." With a bunch of tattooing-needles the whole affected portion of the conjunctiva is repeatedly pierced; at the same time the surface of the conjunctiva is bathed in a solution of sublimate, 1 to 500. Afterward the brush is employed with the same solution. He states that after some weeks the granulation tissue entirely disappears leaving a smooth surface.

Ottawa (*Annal. d'Oculistique*, Vol. cx, p. 45) employs massage.

Blubaugh (JOUR. A. M. ASSN., Oct. 14, 1893) uses a series of scrapers for scraping away the granulations and then gives the patient a "lump of alum," directing him to rub the conjunctival surface as the case demands. The patient is permitted to go home.

Excision of the retrotarsal fold is still advocated by some surgeons (Venneman, *Arch. d'Oph.*, Paris, 1894, p. 413).

Experience in the surgical treatment of trachoma, extending over a number of years, causes the writer to proceed as follows: All operations for marked trachoma are performed under ether or chloroform anesthesia. Cocain anesthesia is not sufficient and, if attempted, results in causing the patient pain and unduly hastens the work of the surgeon. After cleaning the eyes, the margins of the lids are seized in turn by means of the clamp forceps and the lid is rolled over the blades of the forceps. This serves to expose, almost if not quite, the whole surface of the conjunctiva.

With a scarificator bearing three Demarre's blades and supplied with a guard to limit the depth of the incisions, superficial incisions parallel to the margins of the lids are made into the trachomatous tissue. The conjunctival fold is then seized with the Noyes or Knapp trachoma forceps, preferably the former, and held between the blades of the forceps. If on raising the fold of conjunctiva it is found that some of the trachomatous tissue has escaped scarification, the remaining portion is scarified. The incisions should run parallel to each other; they serve to uncap the trachoma follicles and to permit of the easy escape of the masses of lymphoid cells which form the bulk of the trachomatous tissue. By a gentle stripping motion, avoiding undue pressure and tearing of the conjunctiva, the contents of all of the follicles in fornix, tarsal and caruncle conjunctiva are evacuated. A moderately soft tooth brush is then employed to introduce a solution of sublimate 1 to 500 into the conjunctival tissue and incidently to cleanse the membrane, but litttle force being employed. The conjunctival sacs are then irrigated with a solution of sublimate, 1 to 5,000, to clear them of all particles of blood clot, and finally an ointment of sublimate 1 to 5,000, in vaselin is applied to the conjunctival surface by means of a glass rod. A piece of moistened gauze is then laid on the lids and the eyes bandaged for twenty-four hours. The bandage serves to control any edema that might arise if slight pressure were not applied. The patient does not experience pain after the operation and surprisingly little reaction follows. The bandage is removed after twenty-four hours and the after-treatment is commenced. On inspection, when the bandage is removed, a layer of plastic lymph (pseudomembrane) will be observed covering the affected conjunctiva, and a tendency to adhesion between apposed folds of the conjunctiva will be noticed. A few drops of cocain should be instilled into the conjunctival sacs and after a few minutes the sacs should be cleansed by irrigation with a solution of sublimate, 1 to 5,000. After drying, the adhesions between the folds of conjunctiva should be gently broken up by means of a small glass rod, with a smooth round or slightly pointed end, or a metal probe of fair size carrying and being lubricated by a liberal quantity of the sublimate ointment above referred to. The layer of plastic lymph should not be disturbed except where it is concerned in forming adhesions between folds of the conjunctiva. The pseudomembrane forms a smooth surface, under which the repair of the conjunctiva progresses most favorably, and is cast off in a few days disclosing a very satisfactory condition of the conjunctiva.

If any feeling of discomfort is experienced by the patient, cold applications may be made to the lids after the procedure just referred to, which may be continued for one or two hours. There is no necessity for reapplying the bandage. Patients usually open the eyes and suffer little or none. The introduction of the ointment renders the tendency to the adhesion of the conjunctival folds less; however, the adhesions

that do form *must be broken up*, in the manner described, every twenty-four hours until the epithelial layer is completely restored, when the formation of the adhesions will cease. This usually takes about six days. No other treatment is necessary during this time, except that the patient may be directed to bathe the eyes with a solution of boric acid two or three times a day to ensure cleanliness. He may be permitted to be about as usual after the first forty-eight hours. The patient is now given a solution of sublimate, 1 to 8,000, to drop into the eyes three times a day and the surgeon may apply the ointment as above or an astringent, as appears necessary, every second day. Treatment other than a wash to ensure cleanliness may be discontinued in two weeks from the date of the operation. Recovery with a smooth elastic conjunctiva usually occurs in three weeks. This method is thorough, entails but little suffering and ensures good results in all cases in the stage of hypertrophy, and in the second stage in cases where the contraction has not advanced too far. If there is marked shortening of the palpebral fissure, the writer does canthoplasty, limiting the extent to the requirements of the case.

In exceptional cases where few trachoma follicles are present but are persistent (as sometimes occurs in private practice), the above described procedure, to a much less degree, is carried out, cocain anesthesia being relied upon.

The advantages that this method possesses are: 1. The easy removal of the trachomatous tissue, facilitated by the shallow scarification. 2. The thorough antisepsis without deterring the healing process 3. Recovery with a smooth surface and minimum contraction.

One point the writer wishes to emphasize is that the after-treatment must be carefully carried out after this as after other operative procedures for trachoma, otherwise unpleasant adhesions between folds of conjunctiva, with a decided lessening of the area of the conjunctiva will follow.

A COMPARISON OF THE VALUE OF LOCAL MEDICINAL MEASURES IN THE TREATMENT OF GRANULAR CONJUNCTIVITIS (TRACHOMA).

BEING A PORTION OF THE REPORT OF THE SPECIAL COMMITTEE APPOINTED TO DISCUSS THE SUBJECT OF GRANULAR CONJUNCTIVITIS (TRACHOMA) FOR THE SECTION ON OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY H. V. WÜRDEMANN, M.D.

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Study of the extensive literature upon the subject of granular conjunctivitis shows that the vane of fashion in its treatment has veered somewhat from the radical surgery in vogue several years ago to which it had pointed after years of silver and blue-stone cauterizations. Appropriate general treatment and regimen together with local medicinal applications in connection with surgical procedures are again in favor.

To scientifically discuss the value of local medicinal measures it is first necessary to consider the nature of the diseased process. Examination of the vast mass of literature upon the treatment of granular and trachomatous disease shows that the authors' main ideas are to empirically cut, squeeze, burn and cauterize away the follicles and trachoma bodies in order to remove the supposed mechanical effect caused by their presence. I will attempt to properly expose the principles of scientific local medicinal treatment as well as to show the comparative value and action of many of the remedies that are now used in the cure of this disease.

Those chronic inflammations of the conjunctiva which by secondary infection or by metamorphosis ultimate in the trachomatous state pass through the following distinct stages, in whole or in part:[16 30]

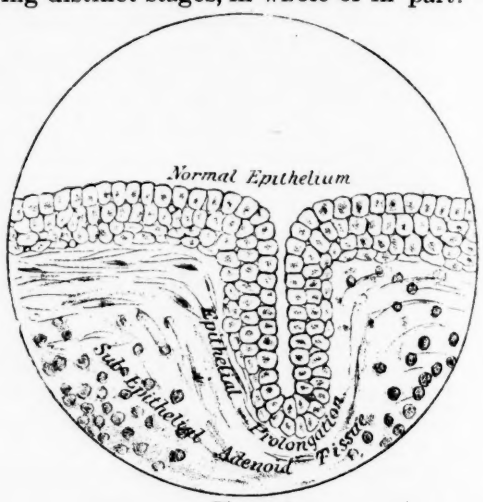

Figure 1.

1. The stage of epithelial proliferation, which is catarrhal condition in which the functions of the cel in reference to their multiplication and the produ tion of mucus is increased (Fig. 2). Here detergent antiseptics and other treatment directed toward reli of inflammation is indicated.

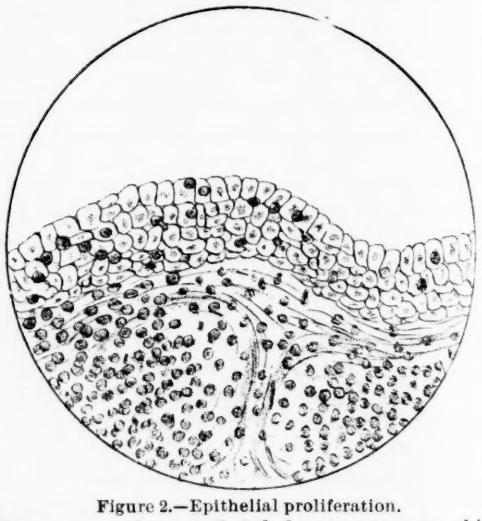

Figure 2.—Epithelial proliferation.

2. The stage of superficial destruction in which t superficial epithelial elements are partially destroy but which by the healing process may be entire reproduced (Fig. 3). In this condition surgi removal of contents of follicles and hyperplastic tiss together with stimulating measures directed towa resorption of the trachomatous masses and regene tion of the epithelium, as well as detergents and an septics are needed.

3. The stage of total destruction of the epithelium which embraces those grave inflammations which, though well held apart by macroscopic signs, have for a common characteristic the destruction of all the epithelial elements on the surface of the conjunctiva (Fig. 4). In this stage, relief of complications and sequelæ, stimulation of the local nutrition to aid in resorption of cicatricial tissue and regeneration of the epithelium through stimulation of that remaining in the conjunctival crypts are the most important indications.

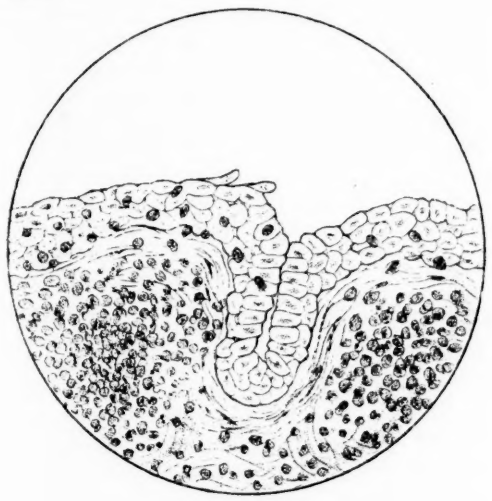

Figure 3.

4. The result of chronic granular disease is xerosis, and is attended by total destruction of all the mucous elements, the conjunctiva being replaced by connective tissue. This is incurable, but symptoms may be partially subdued by emollients.

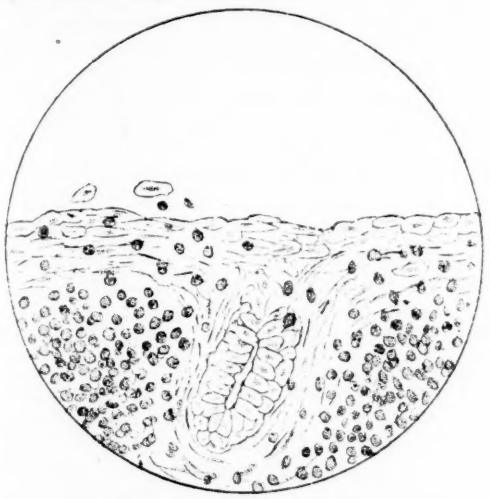

Figure 4.—Total destruction.

The alteration of the epithelium and infiltration of the tissues are the only constant anatomico-pathologic phenomena and our treatment should be directed toward the removal of the causes of its destruction and to effect its regeneration.[19 20 30] In this article I will pay no further attention toward prophylaxis, general treatment and surgical procedures in this disease, except to state that local applications are in most instances only a portion of the treatment and all grave cases must be treated surgically as well.

The local treatment of granular conjunctivitis may be described under the following headings: 1. Detergents. 2. Antiseptics. 3. Subjection of acute inflammations. 4. Stimulation of nutrition. 5. Mechanical or surgical removal of the products of the inflammation, contents of follicles, hyperplastic tissue, etc. 6. Relief of asthenopic symptoms. 7. Relief of complications. 8. Relief of sequelæ.

1 and 2. Be it believed that one or several forms of germs or spores together with other causes form this disease, it is considered necessary to use antiseptics which may hinder their growth with as little destruction of the tissues as may be consistent with resultant recovery of the function.[30] For the patient's use, weak solutions of boric acid (2 to 5 per cent.), bichlorid[20 27 29] and cyanid[13] of mercury (1 to 5,000 to 1 to 10,000) as detergent washes are recommended. Instillation of stronger solutions fortified or guarded by antipyrin (0.5 to 3 per cent.), weak eucain (0.5 to 1 per cent.), cocain (0.25 to 1 per cent.), or holocain (0.16 to 0.25), are gratefully borne by the patient. The washes and collyria act superficially and are little more than detergents, but are particularly useful in the first and second stages of the disease. Yellow oxid of mercury ointment (0.33 to 2 per cent.), and ointment of ichthyol[8 21] (1 to 5 per cent.), are antiseptics as well as stimulant compounds. Far more effect is produced by local application of antiseptics directly to the diseased membrane by skilled hands, and many cases are no doubt cured by such means alone. Brushing by the nitrate or iodid of silver (0.5 to 5 per cent.), aqueous or glycerin[29] solutions of bichlorid of mercury (1 to 10,000 to 1 to 100) or lactic acid[25] (2 to 20 per cent.) cause considerable reaction and the first stains the conjunctiva if used for any length of time. Argentamin[14 22] (5 to 20 per cent.), cyanid of mercury (1 to 10,000 to 1 to 100) and boro-glycerid[5 6] (5 to 25 per cent.), are not open to this objection. The tannate of quinin[3] in solution (5 to 20 per cent.), antipyrin[16] (3 to 25 per cent.), or resorcin[11] (1 to 10 or 1 to 5 in boric acid solution or powder) dusted on the surface of the conjunctiva, are antiseptics. (Powders are later considered in this article.) The submucous injection of sublimate[26] has been recommended in trachomatous pannus.

3. Iced applications or cold bathing together with the silver compounds are useful in the first grade of the affection when there is acute inflammation and when the secretion is free. Irritation may be limited by the use of cocain, eucain or holocain in collyria, to which boric acid or biborate of sodium may be added.

4. Hot water bathing or hot applications are among the best stimulants to nutrition in the second and last stage of trachoma. Bathing is usually ordered as hot as may be comfortably borne, for five minutes at a time from twice to a dozen times a day. Hot compressing is best made for periods of one-half to one hour a number of times a day, the compresses being changed every minute or two. To these applications antiseptics may be added. I have had gratfying results from a jet of steam applied for three to five minutes once a day to the everted eyelids.

After the acute state has passed most cases require stimulating applications of silver, mercury, copper and zinc compounds. It is well not to destroy the epithelium by corrosive antiseptics or caustics in the hope of thereby invoking secondary reaction for the purpose of stimulating nutrition or with the idea of destroying the germs in the subconjunctival adenoid tissue.

Nutrition may be actively increased by local mas-

sage with yellow oxid of mercury ointment (0.5 to 2 per cent.) placed in the conjunctival cul-de-sac and massage practiced through the lids for three to five minutes at a time, or what is better, the retrotarsal folds may be strongly reverted and the ointment rubbed into the mucous membrane by some smooth instrument for several minutes. In cases inapplicable for treatment by scarification, expression, picking out or cauterization of individual granulations, stimulation may be effected by massage with impalpable boric powder, iodoform, calomel or aristol rubbed in by the finger-tip, or by hard rolled pledgets of cotton dipped in olive oil, or by massage with the finger alone, or by an instrument with or without medicaments. Rubbing down of the granulations by pumice stone, instillation of crude petroleum,[7] ichthyol,[8 21] boracic acid and resorcin,[11] glycerite of tannin,[6] etc., act largely by stimulation. The application of alum, sulphate of copper, nitrate of silver, lapis divinus and muriate of ammonium in pencil form act in the same manner.

Jequirity in weak solutions[12] (0.5 to 2 per cent.) three to seven times a week is said to be a powerful irritating stimulant; where used in strong infusions for the purpose of causing an artificial conjunctivitis it is the over-stimulation of the healing process which causes absorption of the granulations and redundant tissue.

5. Mechanical and surgical procedures for removal of the granular contents of the follicles, etc., are most applicable in the second stage and must generally be supplemented by medicinal methods of treatment.

6. Aside from asthenopic symptoms caused by refractive and muscular errors, weak sight is likewise due to conjunctival irritation. This is to be remedied by protective glasses, by hot or cold bathing, collyria of boric acid (2 to 5 per cent.), borate of sodium (2 to 5 per cent.), sulpho-carbolate and sulfate of zinc (1 to 5 per cent.), etc., usually with the addition of antipyrin (0.5 to 3 per cent.), eucain (0.5 to 1 per cent.), cocain (0.25 to 1 per cent.), holocain (0.16 to 0.5 per cent.).

7. For the relief of symptoms as well as complications, as when the process extends to the cornea forming pannus, or when vascular or ulcerative keratitis occurs, the myotics or mydriatics are indicated. Eserin (0.1 to 2 per cent.) is a stimulant of nutrition, the mydriatics are more sedative. Atropin (0.2 to 5 per cent.) is frequently indicated, especially in intra-ocular complications, but is not well borne for any length of time, as it ultimately may produce conjunctival irritation. Scopolamin and duboisin in the same strength may be substituted.

8. The relief of sequelæ.—Massage is the most beneficial method of dealing with leucomata, many of which may be dissipated by conscientious daily application. Active massage is of great benefit in loosening the scars and procuring resorption of cicatricial tissue changes in the tarsal conjunctiva. The mercuric ointments or calomel, boric acid, iodoform, aristol, etc., in powder or ointment form are decided adjuvants for this procedure. Collyria, milk,[18] olive oil or ointments composed mainly of lanolin relieve the symptoms caused by conjunctival xerosis.

Taking the various local medicinal applications most in vogue in the order of their usefulness, we find the silver compounds lead the list: 1 to 5 per cent. nitrate (or iodid[13])* of silver solutions brushed on eyelids from three to seven times a week. Its disadvantage is that it not only stains the conjunctiva if persisted in for any length of time, but is also irritating, and when used in strong solutions or in solid stick destroys the epithelium faster than the microbes, or stimulates the repair. Cases treated by nitrate of silver alone are apt to eventuate with a considerable amount of scar tissue. It is likely that the alkalin non-irritating silver compounds, argentamin[14 22] (3 to 5 per cent.), argonin (2 to 10 per cent.) solutions may ultimately take the place of the nitrate, as they are not open to these objections, although both antiseptic and stimulating. Brushing by corrosive sublimate[24 28 29] (1 to 1,000 to 1 to 100) has its advocates, but it is irritating and its injudicious use is open to the same objections as those of silver nitrate and it likewise corrodes the corneal epithelium. Its application should be limited to connection with surgical treatment,[2 3 27 28 29] as scarification, expression and galvano-cauterization of the follicles. Tattooing[1] with these solutions has likewise been practiced. Cyanid of mercury is better borne and not so irritating. The application of zinc solutions, such as the sulphate and sulphocarbolate are antiseptic and stimulating, but are unpleasant for the patient on account of the irritation. The solid stick of alum is a stimulant and is generally well borne. Sulphate of copper crystal, lapis divinus and muriate of ammonium should be used only for stimulant purposes (several times a week) and not with the idea of cauterizing away the granulations. I wish to here warn against the routine and discriminate use of these caustics as empirically recommended in many treatises and articles. Strong solutions of antipyrin and of quinin are advised, largely on account of their antiseptic properties. The dusting in of powders, boric acid, calomel, tannate of quinin, tannin, iodoform, antipyrin in full strength or resorcin (1 to 10 to 1 to 5 in boric powder[11]), etc., are advocated for their antiseptic and stimulating properties, but are seldom used except when combined with massage.

The ointments of mercury (yellow oxid 0.5 to 5 per cent.), white precipitate (1 to 5 per cent.), red oxid (0.25 to 1 per cent.), calomel (1 to 10 per cent.), cupric sulphate (1 to 10 per cent.) and ichthyol (5 to 20 per cent.) are antiseptic and stimulating, especially when used in connection with massage in indolent follicular and trachomatous disease, and particularly where cicatricial tissue has formed. The value of most applications depends upon their antiseptic and stimulating qualities. Of all forms of local treatment I would consider that massage with or without medicaments is of the greatest value as it produces increase of nutrition and thus aids in resorption of the follicular contents of the trachoma bodies and of the neoplastic tissue.[30]

Most of these applications are better borne by the patient if weak solutions of local anesthetics be instilled before each treatment. Their effect is decidedly increased if the conjunctival cul-de-sac be washed out with warm salt or boric solution. If the inflammation be attended by suppurative secretion it is well to first brush the lids with peroxid of hydrogen solution before applying silver or other medicament. It is likewise necessary to limit the action of the silver compounds by neutralization with second brushing with salt solution. The silver salts form the albuminate of silver, which lines the conjunctiva and acts

*First pass a solution (4 to 12 per cent.) of $AgNO_3$ over lid, then wash with mild solution of potash. ℞. Potass. iod., 8.00; glycerin., 8.00; aquæ, 16.00, whereby a precipitate of iodid of silver is formed.

for some time after its application. The sulphate of copper crystal is to be followed by brushing with clear water to remove the excess.

I wish to here insist upon the thorough eversion of the eyelids where local applications are made to the diseased conjunctiva. The principal part of the process will be found in the fold of transmission, which can only be exposed to view and the proper application of medicines by thoroughly pushing the everted upper lid down by cotton-tipped probe or instrument.

Attention must be given to the symptoms of the patient, which should be relieved by dark glasses, hot or cold bathing and detergent washes and collyria. Medicinal applications should not be used heroically,[4] but restricted to the indications here laid down. Many cases of follicular and trachomatous disease (granular conjunctivitis) are cured by local applications, but when adhered to alone the treatment is tedious and is perhaps more apt to be attended by complications due to neglect or over-zeal than when combined with properly applied surgical procedures by which a more speedy and satisfactory cure is effected.

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THE PRESENT STATUS OF JEQUIRITY IN THE TREATMENT OF TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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It is my purpose in this short paper to give my personal experience only, in the use of jequirity in the treatment of the above affection; when used in picked cases, I know of nothing that will take its place. I have used it in all cases except the acute, with nothing but the best results. I have never seen an ulcer of the cornea follow its use. I have seen some few cases of xerosis after using jequirity, but none I could say positively depended upon, or was the direct after affect of, this medication.

Several years ago one of my assistants, while squeezing a case of trachoma, was unfortunate enough to become inoculated. This case was a peculiar one from the beginning. His eyes stood no treatment well; his corneæ were extremely irritable; all the mydriatics produced increased corneal irritation; his eyes were made worse by all treatment. I compressed the trachomatous bodies twice. I had Drs. Ray and Dabney of this city to see him, but nothing suggested was of any service. I kept him in the Infirmary for months and tried every treatment I had ever heard of, with no good result. I suggested the use of the jequirity several times, but he feared it. At last I determined to use it without his knowledge. His corneæ had several abrasions, and was, as I stated before, extremely irritable. I took a small portion of the powdered jequirity, made a very weak infusion, and applied it carefully to the lids with a cotton mop, two days in succession. Little or no reaction followed, and his eyes improved very rapidly. I repeated the application three or four times. The doctor is now a busy practitioner, and suffers little or none with his eyes. He had mixed astigmatism, for which he wears correcting glasses.

I have under my charge now a case of trachoma in the person of a young woman from Illinois. She had pannus of left cornea. Just above and overlapping right cornea she had a mass of trachomatous bodies. I dusted the powder in the left eye once. The pannus of this eye was relieved promptly. Under two applications to the right eye, the mass of trachomatous bodies disappeared.

I know of no other treatment so safe that will give such results. Before expression came into use, I used powdered jequirity occasionally in cases without pannus, with none but favorable results. I have had cases with extreme pannus led into the office, unable to find their way, who under the use of the jequirity were able in six or eight days to come alone. Mary L: V. R.=P. L; V. L.=20/200. Jequirity used in both eyes. Repeated once. Ultimate result: V. R. = 20/70; V. L.=20/50.

Such cases are common in my experience. I see so many less cases now in which jequirity is indicated than I used to, because trachoma, I think is recognized earlier and treated more intelligently. Very weak infusions of jequirity are often of much benefit. But I most frequently use the powder; severe reaction is much less frequent, the application can be better confined and the powder does not degenerate with time.

The powdered jequirity I now use has been made for some years and is as active today as when fresh. I have used jequirity in all stages of trachoma except the acute with and without pannus, with none but favorable results. I am more careful now in the selection of my cases than formerly, yet I would not hesitate to use it in any case in which other methods had failed me. In select cases of trachoma with pannus, I know of nothing that will take its place.

Gentlemen who have had one or two unfortunate results from its use should try it again. I am sure they will be pleased with it if properly used, in the form of a powder, in selected cases. In some cases it is with me the last resort, in others it is the first.

THE TREATMENT OF THE MALPOSITION OF THE LID BORDER IN TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY F. C. HOTZ, M.D.

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It is needless to say that the faulty position of the lid border induced by trachoma and known as *entropium*, can be treated only by operations. And it is also unnecessary to state that there is scarcely any other malformation of the human body for which a greater number of operations has been invented. Yet it is hardly reasonable to suppose that a condition so typical as the trachoma entropium could be treated with equal success by methods based upon widely different principles.

It is certainly very desirable that some order be brought into this chaos, and I believe this task is not so difficult as it may appear, if we clearly formulate our demands of what, in our judgment, a rational operation for entropium should and should not do.

The first condition we must insist upon, is that we should always take into serious consideration the cosmetic effect of our operation. The eyelids play a very important role in facial expressions, and we have no right to mar the face by unnecessarily mutilating the eyelids in the name of surgery. Every entropium operation which permanently disfigures the eyelid should be forever stricken from the list of legitimate ophthalmic operations; for the malposition of the lid border can well be rectified without the least mutilation.

The second condition we must insist upon is that the most rational method of relieving the entropium *is to remove those structural changes which cause the inversion.*

It is a prevalent idea that the entropium is caused by the shrinkage of the tarsal cartilage and the cicatricial contraction of the palpebral conjunctiva; and many operations are based upon this view. But that these structural changes are not the real etiologic factors in the production of entropium is evidenced by the fact that in many eyelids we find extensive cicatricial shrinkage without entropium, while in other lids we find its margin completely inverted though its tarsus is not only not contracted but abnormally large. Furthermore, it is well known that the destruction of the palpebral conjunctiva by burns does not lead to entropium, and that we may excise large portions of the palpebral conjunctiva and the cartilage without fear of producing entropium.

To trace the etiology of entropium we must study the affection in its incipient stage. And if we do so, we notice the very significant fact that the structural changes begin at the *anterior* edge of the lid margin. Long before the posterior edge shows the slightest disturbance, and even before the position of the lid margin itself is perceptibly altered, do the eyelashes show a decided drooping and the skin along their roots forms a fold falling down over and hiding the anterior edge of the lid border. In other words the skin and the cilia have slipped down on the outside of the tarsus.

This dislocation of the skin, which is shared by the lower bundles of the orbicularis muscle, is undoubtedly brought about by continued and oft-repeated spasms of the orbicularis muscle; for it is exactly the condition of the lid margin during acute blepharospasms, made permanent.

These anatomic changes at the anterior edge persist through all stages of entropium from beginning to end and are, I believe, the chief cause of the subsequent inclination of the lid border itself; for the displaced bundles of the orbicularis muscle resting upon the anterior edge of the lid margin exert a strong pressure upon the same by their contraction in the act of winking; the lid margin will gradually yield to this pressure, become stretched and inclined when its tissues are rendered less firm and resistent by the inflammation which usually invades the tarsus in the course of trachomatous conjunctivitis.

The foregoing exposition of the primary structural changes leading to the malposition of the lid border in trachoma plainly indicates what the principal aim of our treatment should be. The dislocated skin and muscle must be drawn up upon the external surface of the tarsus and fastened to it to prevent their slipping down again; the skin thus drawn up is to be stretched sufficiently so as to turn up by its traction the drooping cilia and the inclined lid margin.

These problems are solved by the following operation: The lid skin being well put on a stretch, a transverse incision extending from canthus to canthus is made through skin and muscle a little below the upper border of the tarsus. The lid portion of the skin and muscle thus divided from the supratarsal portion is dissected up from the tarsus down to the roots of the eyelashes, and the muscular fibers covering the upper border of the tarsus are excised. The lid skin is then drawn up over the tarsus and fixed to its upper border by three silk or catgut sutures, which enclose within their loops only the skin borders of the incision and the upper tarsal border and, therefore, when tied, close the original wound and establish a firm union of the skin with the tarsus. In the five minutes allowed for this paper it is impossible to give a detailed description of the technique of this operation; nor is it necessary since I have fully described it on several former occasions.[1]

Professor Schnabel[2] of Prague, has modified the operation by making the incision only 1 or 2 millimeters above the eyelashes, and after dissecting up the skin and orbicularis muscle to near the upper border of the tarsus, he slides the narrow strip of skin upward until the cilia and lid margin are turned up, and fixes it to the tarsus by a running suture. He wrote me that the reposition of the cilia and lid margin is always permanently achieved by this procedure, and that even in the worst forms of entropium he has no need of grooving or splitting the cartilage.

My observations on this point have led to a different result. After I had introduced the operation at the Illinois Eye and Ear Infirmary, I noticed some of my colleagues invariably made the incision as low as Professor Schnabel; but the results were so much less satisfactory than my own, that in my second paper[3] I took occasion to warn against placing the

[1] Prager Med. Woch., 1893.
[2] Archives of Ophthalmology, Vols. viii and xi; Annals of Ophthalmol. Vol. v.
[3] Arch. of Ophthalmol., Vol. xi.

incision too near the free edge. But in many cases the cartilage is so small that the incision has necessarily to be made very close to the cilia. And I frankly admit that under these circumstances I am not able to accomplish the complete and permanent reposition of the cilia by the above operation alone; I find it necessary to add to it the intermarginal incision and to fill the marginal wound with a graft of skin or mucous membrane. The graft should be of the same length and width as the wound. Retaining sutures are not necessary, but both eyes should be bandaged until the graft is well adherent in its new bed (twenty-four to forty-eight hours). I use skin grafts in preference to mucous membrane, because the normal lid margin is covered with skin, not with mucous membrane; because skin grafts are less liable to drying up and mortifying and because they give a more substantial support to the cilia. I cut the required strip from the integument behind the ear, the incisions penetrating obliquely just to the corium The graft is transported directly to the lid and adjusted to the wound.

Hairs do not grow in such skin grafts. If afterward any hairs appear in the new lid margin, it is easy to prove they are cilia left behind in the posterior portion of the lid margin by a faulty execution of the intermarginal incision.

The management of entropium briefly outlined in this paper is the result of careful and critical observations and trials carried on during the past twenty years; and I feel warranted by a large clinical experience, in stating that the operative procedures here recommended satisfy every requirement of a rational operation. They do not cause any disfiguration of the lids; they rectify the primary structural changes causing the entropium; and they relieve the malposition perfectly and permanently.

HINTS ON THE HYGIENE OF TRACHOMA AND THE INFLUENCE OF ALTITUDE AND CLIMATE.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY SWAN M. BURNETT, M.D., PH.D.

WASHINGTON, D. C.

To establish efficient rules for the hygienic management of a disease it is first necessary to have definite ideas in regard to its causation, the condition of the subject and the environment most conducive to its development.

In respect to trachoma our knowledge is sadly deficient as to the majority of these factors. We have not yet arrived at the unanimous acceptance of a microbic origin of the disease. While the probabilities, in view of recent bacteriologic studies, point to the existence of a specific micro-organism as concerned in some way in the production of trachoma, the most diligent researches have failed to find one which any considerable number of investigators have agreed upon as the definite trachomatous microbe. By others it is held that the disease is essentially one of the adenoid tissue of the conjunctiva, which an inflammation of that membrane brought about by any means whatever is capable of calling up in a person predisposed to it, and who is in a condition favorable for its outbreak. In other words, a positive and well established operating course for trachoma has not yet been agreed upon. Even its contagiousness *per se*, which was formerly accepted as one of the characteristics of the disease, is now questioned by many. It is acknowledged that the discharge from a trachomatous eye may contain micro-organisms which, when transported to another as yet unaffected conjunctiva, will set up an inflammation there, but this inflammation is not necessarily trachomatous. Any inflammation, however, is capable of setting in motion a train of processes which will end in an outbreak of trachoma if a tendency to the disease be present, just as an attack of pneumonia will hasten the appearance of tuberculosis in one predisposed to it. This matter of predisposition as applied to trachoma is one which has received considerable attention only recently. In former times it was considered a purely contagious affection to which all individuals were liable in the same degree, and this idea is still held by some.

The facts that have been elicited from a systematic investigation of the prevalence of trachoma among different people show, however, such a disparity of susceptibility among them that we are forced to consider race as an important factor in the establishment of a predisposition to the disease. Some races, as the negro in the United States, are practically immune even under the most unfavorable hygienic surroundings, while others, as the Irish, Polish Jews, Italians, etc., are especially liable and suffer greatly when there are favorable conditions for the development of the disease. With the acceptance of the theory of a dyscrasia or predisposition as probably the essential character of the affection, our ideas in respect to its hygienic management must differ somewhat from those based on the theory of its purely contagious nature. As, however, the idea of a dyscrasia has been considered seriously only within a very recent period, our knowledge of the nature of this predisposition is as yet very limited. This is a field which at present offers the most promising results for study and investigation. It must be borne in mind that here, as in all diseases of a demonstrated or supposed microbic origin, even with the acceptance of a dyscrasia or predisposition, we have to consider not only the micro-organism but also the soil in which it grows and develops. We must have soil as well as seed. A large number of pathologic micro-organisms we have always with us everywhere, and in the conjunctival sac of perfectly healthy eyes there are often to be found organisms which, if they were sufficiently numerous and the condition for their growth favorable, would in a short time set up a morbid process; all they need is a proper condition of the soil. Hitherto we have been directing our attention exclusively to the microbe, its form, habits, modes of development, etc., to the almost utter neglect of the soil on what it grows and pabulum on which it feeds. It is evident, therefore, that any system of hygienic management which aims at anything like scientific exactness and satisfactory practical results, must embrace a study of the condition of the soil on which the micro-organism grows as well as the size and shape of the organism itself. This general proposition applies to trachoma so far as it may be demonstrated to be a microbic disease. But if it shall be found that there is no specific microbe but that it is simply a disease of the adenoid tissue of the conjunctiva, there must still be something which starts the morbid process in motion, and the conditions for its action must be propitious. It seems probable that this beginning may be an inflammation of the

conjunctiva of almost any kind. Even an ordinary catarrhal conjunctivitis, the result of dust, smoke, bad air or other irritating influence, may suffice to prepare the ground and set the process going.

The first law, therefore, in the treatment of trachoma and in the prevention of it in those predisposed to it, is the avoidance of those causes which are likely to lead to such an inflammation. They should be kept apart from those suffering from any form of contagious ophthalmia. Over-crowding and badly ventilated quarters should be avoided, and such patients should be kept out of all forms of vitiated or irritating atmosphere. They should not follow any occupation in which there is dust or smoke. Out-of-door employments are not to be unreservedly recommended, since it is precisely in these that such conditions are likely to exist, especially as regards dust. This applies with especial force to general farming; for in field work of many descriptions, harvesting, threshing, etc., there is commonly a great deal of dust, while the ammoniac fumes from the ordinary farm stable are extremely irritating to the conjunctiva. For the same reason dry and dusty localities are to be studiously avoided.

The effect of climate has not yet been studied sufficiently to enable us to form a just estimate of its significance. In and of itself temperature seems to exert but little influence. Cold and hot countries are free and affected in nearly the same degree. Humidity and dryness also are not by themselves apparently of much importance since trachoma is found in both. The influence of climate would appear to depend more largely upon the presence or absence of dust than upon anything else. Of course the habits of the people in regard to over-crowding, etc., as influenced by climate are not without their effect in this particular.

As a rule the countries bordering on the sea are less affected, probably on account of the absence of dust, while the interior lands, subsequent to long drouth, are afflicted more seriously. Some of the most malignant cases we have in the central portion of this country are to be found among the inhabitants of the country districts of Kentucky and West Virginia. Further investigation is much needed on this point, and it is hoped that observation will in future be more specifically directed to the meteorologic conditions as influencing the development of this disease.

The same may be said of altitude, for we have found that altitude alone does not give an immunity. It is seen at the height of 10,000 feet above the sea-level in Colorado and in the mountains of the Tyrol, and I have seen it among the mountains of East Tennessee 1,000 feet. On the other hand certain countries at the sea level as Ceylon are entirely free. It would seem to be a fact, however, that other things being equal a high elevation, if not dusty, exercises a beneficial effect on the course of the disease, most probably on account of its bracing effect on the general system.

TEN YEARS' EXPERIENCE WITH THE SURGICAL TREATMENT OF TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

BY HAROLD GIFFORD, M.D.

OMAHA, NEB.

Although the idea of treating trachoma surgically is at least as old as the days of ancient Greece, it received very little attention in modern times until about 1890. To be sure, occasional writers, Galezgowski, Mandelstamm, Schneller, Hotz, Prince and others, had urged upon the profession one surgical procedure or another, but when I first began to devote myself to ophthalmology in 1882 and for eight years thereafter, surgical measures had practically no place in the treatment of trachoma in a great majority of clinics in this country and in Europe. In the years 1890–92, however, ophthalmology suffered from what amounted almost to an epidemic of surgical cures for trachoma, and cutting, brushing, burning, scraping, squeezing and scarifying were recommended with an enthusiasm born of incomplete observation and hasty generalization. Nearly all of these methods were warranted to cure the great majority of cases in from one to four weeks and the prospects opened up to the general practitioner and to the oculist with a number of old trachoma cases on his hands, were so brilliant that it is not surprising that bluestone and nitrate of silver went to a discount, while Knapp's roller forceps and other mechanical appliances rose in favor correspondingly. Those, however, who had for several years previous to this epidemic been treating trachoma by surgical methods knew that these high expectations would not be fulfilled and that a reaction was inevitable. The signs of this reaction are now apparent enough and I think it not unlikely that unless the good which can be accomplished by surgical measures be urged systematically and with moderation, in fifteen years they will have no more of a place in ophthalmology than they had ten years ago. The trouble with these methods is that while each of them can do some good, no one of them is applicable to all sorts of cases, and it is even rare that any one of them is sufficient for any given case.

I began treating my trachoma cases surgically in 1886, and while the brilliant results which at first I thought I secured afterward, in many cases, turned out to be only moderate, I have persisted in the use of squeezing, cutting, scraping, burning and scarifying, each in its proper place, combined, nearly always, with applications of nitrate of silver and sulphate of copper, and have learned to make use of them in many cases in which, by some authorities, they are considered contra-indicated. The only cases in which I consider them, as a rule, contra-indicated are those of acute trachoma; for the great majority of these, if seen within a few days from the start, can be cured in from three to six weeks (and occasionally in much less time) by a thorough daily application of the sulphate of copper crystal to the retrotarsal folds. When at the end of the latter period there are still marked signs of infiltration, the use of expression or the excision of a strip from the folds is generally indicated.

With regard to the technique of expression, I use forceps, to be described later on, going over the tissues at least three times, with gradually increasing pressure. In this way the trachomatous foci are first broken up and then thoroughly squeezed out, without so much tearing of the folds as sometimes results if the attempt is made to squeeze them out completely at once. To prevent the adhesions which otherwise often give much trouble in the after-treatment, I have of late, at the close of extensive operations, everted each lid by two stitches, which are passed through the edge of the lid and the skin of the cheek or brow. A moist dressing is then applied, the moisture being retained by gutta-percha tissue and the cotton which comes next to the everted lids being well coated with

sterilized white vaselin. This and the stitches are removed permanently after twenty-four hours and by that time the abraded surfaces are so thoroughly glazed over that there is little or no subsequent trouble with adhesions. In some cases where the dense non-gelatinous nature of the infiltration of the folds and the edge of the upper tarsus indicate that expression alone will not get rid of the trachoma quickly, I combine expression, excision and sharp curetting at the first operation; the gelatinous portions of the folds being squeezed, the rest excised and the tarsi well scraped. With regard to the technique of excision of the folds, I use none of the clamps which have been devised for facilitating the operation, but simply raise the everted fold with a fine-toothed forceps and excise as broad a strip of it as seems necessary; and in the case of the upper lid I generally cut out from the central edge of the tarsus a strip from one-twelfth to one-eighth of an inch in breadth. I have never felt like going as far in this direction as Heisrath (*vide* Lehmann, "Inaug. Diss.," Königsberg, 1895) who, in many cases, excises nearly the whole tarsus, leaving only a strip 1 to 2 mm. in width at the ciliary margin; though I have no doubt that, in many cases it is an excellent method of getting the patient into a tolerable condition; and from what I have seen of one of his cases, it produces none of the bad results which, *a priori*, one might expect to follow so radical a procedure. Where the strip excised is narrow and includes little or none of the tarsus, no suture is required, a few days bandaging is enough; otherwise, I close the wound with a continuous suture,

Trachoma Forceps.

starting and finishing at the extreme ends of the lid, so that the knots are left on the skin side. This I consider important, because the knots of interrupted sutures are apt to irritate the cornea. I have seen one case in which serious ulceration was started by them and that this is not unusual I judge from the remark of Lehmann (*loc. cit.*, p. 12) who, in reporting Heisrath's excisions, naively remarks that if the patient complains of much pain it is best to remove the bandage and see if the sutures are not causing ulceration of the cornea.

The squeezing out of gelatinous matter can be accomplished with greater or less facility with any of the various forceps invented for this purpose. The original ring forceps of Prince is very efficient, and Noyes' stocking forceps has advantages in certain cases. One of the best all-round forceps was devised by my former colleague, Dr. Graddy, now of Nashville, Tenn. Knapp's roller forceps, though ingenious in principle, are not so useful, in my opinion, as any of those just mentioned. They can only work in straight lines, which makes them very unhandy for working in the pockets at the extremities of the lids; and the rollers are necessarily so thick that if the conjunctiva is atrophic, the infiltrated areas often can not be grasped by them. In the forceps which I use, I have had combined the advantages of the ordinary ring forceps, the strength and breadth of blade of Graddy's instrument, and at one portion of the ring, the narrow edge of Noyes' stocking forceps. In certain old cases with much atrophy of the conjunctiva, one not infrequently sees areas of infiltrated tissue in the corners, which can not be seized and properly expressed with any other forceps that I have seen. The butt end of this forceps is made of a single piece of rounded and thin-edged metal, thus forming a very useful instrument for squeezing, between it and the fingers, portions of the tarsi which can not be seized to advantage with the forceps blades.

Cases of old and so-called cicatricial trachoma are by many excluded from surgical treatment; but these are just the cases where it is of infinitely greater benefit than any form of medical application. Here, besides expression and excision, scraping with a sharp spoon, the actual cautery and scarification, followed by some medical application, are of the greatest value and will often produce the most rapid kind of cures. Occasionally the procedure of Noiszewski, namely, the deep excision of the diseased tarsal conjunctiva with grafting of lip membrane to replace it, is in order. I have tried it with good results in a few cases where the disease was so deep-seated that nothing but excision or the deepest kind of scraping or burning would remove it, and yet the membrane was so atrophic that practically no lining for the lids would remain after such measures, unless grafting were done. The use of the actual cautery I generally limit to cases in which small, deeply infiltrated islands of trachoma occur. Where these islands are larger I use the sharp spoon or scarification. Brushing seems to me to be a very crude and inaccurate method.

In nearly all cases, except the acute ones, some sort of surgical interference is called for more than once, and in the intervals between the surgical proceedings, the application of sulphate of copper, nitrate of silver or some other astringent or antiseptic is called for; and in many cases all the surgery which I think it safe or advisable to use upon the lids does not prevent the necessity for many months of medical treatment. I have spoken of sulphate of copper and nitrate of silver as equal in efficiency, but on account of the great advantage which copper possesses in not staining the tissues it is the only application which I recommend for a long continued use. The staining caused by silver is a disadvantage not merely from a cosmetic point of view, but because it renders intelligent treatment much more difficult by disguising the line between healthy and diseased tissue.

Finally, a word as to the dangers of the surgical treatment of trachoma. Some years ago I wrote a paper on this subject, in which reference was made to two cases of my own in which the cornea had been somewhat injured by ulceration following the use of surgical measures; while in the case of four other eyes, in the practice of other physicians, sight had been completely lost from a similar cause. Since then other writers have reported unfortunate results of the same sort and have confirmed me in the conclusions at which I then arrived, namely, that while the surgical treatment of trachoma is of great value in nearly all classes of cases, for the majority, it is not a swift and unfailing cure (unless we include follicular conjunctivitis); and where there is non-vascular ulceration of the cornea, its use may be attended with the most serious danger to sight. If I had to choose between the exclusive use of either the medical or surgical treatment of trachoma, I should certainly choose the medical, for with it nearly all cases can be kept from injury to the sight; and most cases can in

time be cured. The surgical treatment is of great value, but I seriously question whether in inexperienced hands it will not in the long run, do much more harm than good; for not only is there direct danger to the cornea in some cases, but where relapses occur after its use, I have a decided impression that the disease gets a deeper foothold in the tissues and is more apt to cause ulceration of the cornea than when medical applications alone have been employed. Instead of simplifying the treatment of trachoma, the introduction of surgical measures has decidedly complicated it, and no one should use them who is not thoroughly versed in the diagnosis and treatment of all diseases of the conjunctiva and cornea.

TRACHOMA, ITS RELATIVE INFREQUENCY IN SOUTHERN CALIFORNIA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY H. BERT. ELLIS, B.A., M.D.
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Although there is not a perfect agreement among pathologists as to the identity or non-identity of follicular conjunctivitis and trachoma (that is, as to whether they are independent affections), still the recent text-books on ophthalmology are almost unanimous in making a clinical if not a pathologic distinction between these manifestations. It is not my intention, nor is it necessary in a paper of this description, and on such an occasion, to enter into a dissertation giving the details of the arguments that have been, and are still being brought forward to prove the sameness or dissimilarity of these diseases. It is sufficient for the purposes of this article to state my own position in the controversy without giving the reasons for "the faith that is in me," and thus prevent any misunderstanding of terms.

"Granular lids" is a phrase that I but rarely use, and then always as a synonym for trachoma (Dr. Burnett to the contrary notwithstanding), a specific disease ordinarily depending on the transference of secretion from some other affected eye. Follicular conjunctivitis I believe to be entirely independent of the former, and not an early manifestation or stage of trachoma, but as in many other clinical conditions, differentiation is not always easy and both diseases may be present in the same eye at the same time.

As oculists we must all realize that to the laity all roughness of the conjunctivæ is, and all sandiness and smarting the result of, "granular lids." To what extent the general practitioner is accountable for this view I do not know, but I fear his responsibility is great; and I think that as a society and as individuals we should use every endeavor to correct this false, or to speak the best for it, this imperfect view. It seems to me that the terms "granular lids" and "granular conjunctivitis" should be eliminated from our vocabulary as not being scientific, and because they serve no useful purpose, but on the contrary tend to confusion.

In order that this paper might not express the views of the writer alone, and in order to know what the other oculists of Southern California thought concerning the relationship of these diseases, I sent the following questions to the leading eye men in Los Angeles and the surrounding country from Bakersfield in the North to San Diego in the South:

1. Do you make any distinction between follicular and granular conjunctivitis? If so, what?

2. In your ophthalmic practice in Southern California have you observed granular conjunctivitis (trachoma) frequently? In about what percentage of your cases?

While these questions were not designed to cover the field of the pathology of the diseases under consideration, they were sufficiently comprehensive to discover the manner in which the different men used these terms, and by this means I believe I have been able to quite accurately substantiate the inference of the title of my paper, that is, that trachoma is relatively infrequent in Southern California.

I tabulated the replies of the best known oculists in the southern portion of my State, and it was worthy of note that nine out of the ten differentiated between the diseases; that but one said there was practically no difference, and even he found only 1 per cent. approximately of both conditions together.

There were nearly as many ways of distinguishing between the affections as there were replies to my inquiries and the summary would seem to indicate that the differential diagnosis was not sufficiently clear to each one of the writers, as to make it possible for me to believe that each of the oculists was always absolutely certain of his diagnosis. However there was sufficient similarity and unanimity to show that the broad distinctions were concurred in by most of the writers. Nearly all considered trachoma or "granular lids" a specific disease, in all probability contagious, occurring principally among the poor who live in crowded and filthy localities. Follicular conjunctivitis might or might not be contagious, occurring more frequently among the "well-to-do." Trachoma always leads to the destruction in a greater or less degree of the conjunctival tissue, while the follicular trouble may exist indefinitely and yet result in no loss of conjunctiva. Every one replied that trachoma was relatively infrequent in this section of the country. The percentages varied from 0.5 of 1 per cent. to 2 per cent., with the exception of one which was 5 per cent.; but the man who gave this report had been here but a year, and remarked that most of his cases were chronic and imported from the East.

In my own practice, extending over a period of eight years in Los Angeles, I have had less than 1 per cent. of trachoma, including both my private work and college clinic, and the cases were about equally distributed among the poor and wealthy. Follicular conjunctivitis I have found relatively more frequent, but these cases do not reach higher than 5 per cent.

Why trachoma should be relatively infrequent in Southern California I do not know, but the statement of a few facts may throw some light upon the subject. We have a cosmopolitan population; the Irish, the English, the Scotch and the German; the Frenchman, the Italian and the Spaniard; Jews from all countries, negroes, "Japs" and Chinese, but mostly Americans. But the trouble is not confined to any particular nation. In no part of our city are the inhabitants particularly crowded. The great bulk of the population lives within twenty-five miles of the ocean and at an elevation of less than 1,000 feet. The climate is such that an out-of-door life is the rule. This fact with our relatively good sanitary conditions, helps to render our poorer citizens comparatively healthy and so they are enabled to resist, or rather they are rendered less susceptible to contagion of any kind.

THE SURGERY OF TRACHOMA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1–4, 1897.

BY S. LEWIS ZIEGLER, M.D.

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Surgical procedures for the relief of trachoma are only indicated in the chronic stage of this disease, and especially for the relief of the complications and sequelæ, the most common of which are pannus, ulcerative keratitis (chiefly in the form of multiple erosion ulcers), blepharophimosis with its accompanying lid friction, and mucopurulent discharge or epiphora. A more remote sequela is the contraction which results in ectropion, or entropion with trichiasis.

Without going deeply into the subject of the *etiology* of trachoma, there is no doubt but that the essential elements in its *persistence* are, a partial occlusion of the tear duct, with consequent epiphora and regurgitation of septic secretions; a perversion of the ocular secretions themselves; the maceration of the cornea from the excessive amount of secretion and discharge present, and finally friction from tarsal pressure, with erosion of the corneal epithelium.

In the first place we can definitely assert that the persistent growth of the granulations which have already formed is kept up by the continued moisture present, together with the irritation of the septic secretions, just as polypoid growths increase in the presence of moisture. Furthermore, the tear-duct, even if it were not originally at fault, through participation in the inflammation and subsequent contraction, with a like perversion of the secretions contained within its lumen and the partial abolishment of its capillary action, due to its thickened mucous lining and viscid contents, not only prevents the tears from passing downward, but really adds to the trouble by the constant regurgitation of these septic secretions; in fact, not infrequently the local inflammation has gone so far as to have broken down the lining membrane of the tear-duct and involved the bony canal itself.

Manifestly then, the first object to be accomplished is to secure a patulous tear-duct, by means of *rapid dilatation*. It has been my custom for several years past to accomplish this without any incision of the tissues, as the latter only leads to subsequent cicatricial contraction. This is done by first introducing a needle-probe into the lachrymal puncta and passing it through the cartilaginous canal; it is then withdrawn and a conical dilator[1] with a maximum size equal to that of a No. 10 probe is passed through the cartilaginous canal, and thence through the bony canal into the nose. It is seldom necessary to repeat this procedure in order to maintain a patulous duct, but occasionally there will be sufficient contraction to require a second dilatation. By this method, without incision, the capillary action of the duct is retained and the current of lachrymal drainage directed downward toward the nasal orifice.

The second procedure is the operation of *canthoplasty*, to relieve the friction of the lids, and, at the same time, the tendency to maceration, which is an unavoidable accompaniment of this condition. This operation should be a more extensive one than that usually employed; in other words, a simple section of the external canthus with the scissors will not give sufficient relief to accomplish our purpose. The section of the lids having been accomplished with a pair of strong curved scissors, with the curve turned upward to correspond to that of the upper lid, a section of the external canthal ligament should follow, which can best be accomplished by grasping the end of the incised upper lid with a tenaculum or strong rat-tooth forceps and exerting slight traction, in order to make tense the superior canthal ligament, which is then cut with a pair of small scissors as near to its bony attachment as possible, in order to avoid any traumatism of the lachrymal gland. Sutures are then inserted in the usual manner, the conjunctiva and skin being brought together neatly.

Ordinarily if these two procedures are thoroughly and boldly performed but very little other treatment will be required, unless there is still some regurgitation from the tear-duct, in which case the nasal condition on that side should have some sedative treatment, and if, as is frequently the case, there are adenoid vegetations present operative measures for their removal should be at once undertaken. For the relief of the granulations themselves, slight scarifying of the lid, followed by the use of Knapp's roller forceps will usually accomplish all that is desired. If, however, hypertrophy is still persistent, electrolysis as suggested by Dr. Johnson, or the galvano-cautery may be required to reduce the exuberance and hasten resolution.

Certain other measures have been suggested from time to time, but do not appear to have the value that those outlined have shown to possess. Burow's operation, consisting of an incision of the superior tarsal cartilage along the whole inner margin of the lid, thus making a flail-like hinge, does not yield any more freedom from blepharophimosis than an *ordinary* canthoplasty, and by no means as much as canthoplasty combined with section of the superior canthal ligament. The operation of peritomy or syndectomy, consisting of a section of the blood vessels around the limbus corneæ, is not always successful in stopping this vascular invasion, and I have never found it necessary in cases where rapid dilatation and canthoplasty had been performed.

The local treatment to be applied to the mucous membrane itself should be of a mildly astringent character and not sufficiently irritating to keep up the disturbance. Tannin and glycerin may be applied every day, or on alternate days, while the nasal disturbance is best relieved by applications of tr. benzoin comp., which is antiseptic, astringent, depleting and stimulating. The multiple erosion ulcers generally disappear as soon as the friction and maceration have yielded to the treatment that has just been outlined. The relief from friction, pressure and maceration and the free drainage of the septic secretions seem to promptly bring about resolution and hasten convalescence.

1509 Walnut Street.

[1] The dilator is the writer's modification of the one devised by the late Dr. Lewis. It is made by Gemrig & Son.

DISCUSSION ON TRACHOMA.

Dr. HERMAN KNAPP of New York—I did not hear the paper of Dr. Weeks but as regards the treatment of trachoma we have certainly to distinguish two kinds of trachoma clinically, which I would like to call non-inflammatory or simple, and inflammatory. I meet in New York a relatively large number of cases where there is no trace of inflammation visible. Sometimes the discovery is made accidentally; when the lids are turned, the upper and lower retrotarsal folds are found more or less completely studded with granules. In the course of time, and by unfortunate circumstances, those granules will produce irritation and inflammation of the catarrhal kind, and so we get the mixture of pathologic condition which we call in-

flammatory trachoma, and this is certainly contagious, as the reverse process may take place just as well. These two conditions indicate different methods of treatment. For the simple granules, which may be excessively numerous, with no inflammatory symptoms, I know of no better remedy than the surgical treatment with some kind of forceps. I saw Dr. Noyes use his forceps, and I thought that a forceps that would be equally efficient in removing the granules and more saving with the tissue would be best, so I made the roller forceps. I do not go over the surface once or twice, but repeatedly, and with always a moderate amount of pressure. This I do in all parts of the conjunctiva. Nothing should be omitted. In the majority of cases medicinal treatment is necessary; there is only a relatively small number where surgical treatment alone will produce a cure, but it is possible for them to get well by surgical treatment, and I have in mind even that they will get well without treatment, but this I can not very well ascertain from personal observation, for I have never allowed myself to send a patient home and then watch him for a year. It would be, however, a permissible experiment. As for after-treatment, I mostly use sulphate of copper, applied every day and very mildly, but especially in the posterior retrotarsal folds.

I am quite in accordance with Dr. Burnett that the cleanliness of the atmosphere has a great influence on the treatment, just as it has on the production of the disease, for I know patients that I can take to a well-ventilated hospital, unlike their crowded homes, get well in a shorter time and show generally better results. When the patients go home it is necessary to watch them, because relapses, though in the minority, are not infrequent. If they expose themselves to an impure atmosphere they will have the same conditions and reproduce the disease.

With regard to the harmfulness of mechanical treatment, and especially the roller forceps, I am astonished to hear of the destruction of the cornea. I do not remember one single case where, by the roller forceps, a corneal ulcer was produced, or an existing one aggravated. In no case was there any such thing as sloughing, and I think that must be entirely accidental.

With regard to adhesions, I have seen two cases; I mean not of one part of the conjunctiva to another, but to the eye ball, symblepharon.

Dr. GIFFORD—I referred more particularly to adhesions in the conjunctiva of the lids.

Dr. KNAPP—I think the retrotarsal fold shrinks and gives the impression of adhesions, but it never distorts the lid at all. and I think we need not be afraid, on that account, to use the forceps. I would like Dr. Gifford, in closing, to explain more fully about going into the cicatricial conjunctiva to find trachoma foci; I have had no experience with it.

Dr. HAROLD GIFFORD of Omaha—With regard to Dr. Würdemann s paper, I disagree less with him than I expected to. I was expected to "rip him up the back," but I find small chance to insert the knife. I am in accord with him fully on the pathologic process so far as the microscope is concerned. I do not think you can distinguish with the microscope between trachoma, the papillary condition after gonorrheal conjunctivitis, and some forms of follicular catarrh. I have the best reasons for believing that trachoma is a contagious disease, for I contracted it myself from squeezing a granule and having a drop fly into my eye; I had the disease for two years. I have cases in which I wish for something new every now and then, but I have not branched off from the old treatment of silver and sulphate of copper, and the latter is my main reliance. After reading the original communications in which such good reports were made for argentanum, I sent for some of it and treated one case by applying argentanum to one lid and nitrate to the other, but I was disappointed to find that the former had less effect. Whether it will eventually stain the lids remains to be seen.

As to the method of treating cicatricial trachoma I do not wish to be understood as saying that where trachoma has run its course in certain portions of the lid you can take those portions and squeeze any matter out from them, but in all my cases I only know of one exception, in thousands of cases which I have treated, where I could not find undoubted foci of trachoma thickening. You would see some thickness, and on squeezing get quite a bubble of gelatinous matter. I was surprised to find it so. Where everything is atrophic there is no use in squeezing. This condition may keep up continuous ulceration of the cornea. It is found particularly toward the inner side, and by turning out this little area and burning it with the cautery, or scrape it out (I prefer the cautery), I have been able to cure them within a minute or two.

Before finishing I want to pay a tribute to Dr. Hotz's contribution to the treatment of trachoma. In the first place, his method of squeezing out the follicles with the thumb-nails was a decided advance, and while I do not think it is the proper method to continue now, it served to call the attention of the profession to the treatment. Dr. Hotz was the first man to insist on the method of pressing back the globe to force this fold of tissue into view. In regard to the treatment of the edge of the lid, Dr. Hotz described his method of putting in a skin flap in addition to his original operation. I am not prejudiced against the use of skin, for I was one of the first to suggest the use of the Thiersch flaps. I found a great many cases where the entropion would be cured entirely, but a little of this skin would be turned in to rub the cornea and while in many cases it produced no irritation, in some it did and made me want to get it out. So I use skin no more, but mucous membrane almost entirely. If you put skin into the under surface of the lid it stays skin, and does not become mucous membrane. You can scrape up rolls of epithelium with the nail for a long time, and it also collects there to decompose and produce irritation.

Dr. FRANK ALLPORT of Chicago—I have been much interested in the discussion of trachoma and its consequences. The subject appears to have been quite thoroughly exhausted and there remains but little to be said. Dr. Hotz's idea of the cause of entropium is certainly very seductive and plausible, and while I believe entropium to be frequently produced by contraction of the tarsus and conjunctiva, yet I have seen many cases where a dislocation of the soft portions of the lid covering the tarsus was the only evident pathologic condition. Dr. Hotz has so long been regarded as an authority on the subject of lid surgery, that I think but few of us would have the temerity to question any statement he might make, and I have nothing but praise to say of his operation for entropium, which I have used for some fifteen years with thorough satisfaction. I sometimes vary the operation by a canthoplasty or a transplantation of tissue into the lineal gaping wound along the margin of the lid, or the removal of a piece of cartilage from the face of the tarsus, or even the removal of some skin in people possessing very redundant lids; but Dr. Hotz's operation as described by him many years ago and reiterated in the paper which we have listened to has formed the basis of all of my entropium operations for many years, and I have never had reason to regret my allegiance to this procedure. By using the tip of the tarsal cartilage as a fulcrum upon which to evert the palpebral margin we have a firm and substantial point upon which we may depend, and therefore the operation is built upon a sure foundation. The mistake is sometimes made of making the cutaneous incision a little higher than the tip of the tarsal cartilage. In this event we will not secure the full benefit of the operation, as it is necessary that the incision should be nearly on a line with the tip of the cartilage or a little below it in order to evert the marginal lashes. I have known operators to discard Hotz's method where the cicatrix plainly showed that the line of incision had been too high, and consequently practically useless. Concerning the objections to Dr. Knapp's roller forceps, I have only to say that I have used them with thorough satisfaction for a number of years and have never seen any of the accidents to the cornea which have been reported as following their use. I can not but believe that the abraded or ulcerated corneæ that some gentlemen report have been due to a careless use of the instrument, which is more or less bulky, and may very easily abrade a cornea unless due care is taken. In using the instrument, I think the patient should first be thoroughly, generally anesthetized, as the operation is very painful, and the cornea may easily be injured during the struggles of an unanesthetized patient. The lid should then be gently but completely raised from the eyeball before the roller forceps are put in place, and this idea should be observed during the whole course of the operation. The expression of the trachomatous granules should not be done with the vigor which I have sometimes seen used. The forceps should be gently and repeatedly rolled, or milked, over the conjunctiva, which will produce in time a thorough eviscerating of the granules without the tearing and stripping of the conjunctiva which is complained of by some operators. I believe if Knapp's roller forceps are used in this way they will fulfil the purpose of any forceps designed for the eviscerating of trachomatous granules. After the granules have been thus expressed, a wealth of valuable and reliable methods of treatments may be adopted, and it is well to change the treatment from time to time. For several years I have been especially wedded to the boric acid powder, profusely dusted upon the everted lid and vigorously rubbed into the conjunctiva with the tip of the finger. This treatment is especially adapted to those cases of trachoma complicated with the various forms of keratitis, and although very efficient *is not irritating*. I have also lately used with much satisfaction a 1.5 per cent. solution of the pure iodin crystals in oil of vaselin freely daubed upon the lid by a camel's

hair brush. These two methods are merely suggestions which I have found valuable in my practice when I desire to change from the old orthodox copper and nitrate of silver applications. As I have seen some operators who have sustained infection from the spattering of the trachomatous granules into their eyes during an expression operation, I would beg leave to suggest that as a matter of self-protection we should use large isinglass eye-protectors while performing such operations.

Dr. S. Lewis Ziegler of Philadelphia—In regard to Dr. Knapp's forceps, I use a much shorter and thicker roller than I have seen here, because I can get into the folds so much better. In using them I draw them *diagonally* across the lids instead of straight up and down, and in that way do not pull so hard on the retrotarsal fold. There is very little reaction following this procedure, but where it does occur ice compresses will relieve it. I believe that no matter what the original cause of trachoma may be, the tear-duct has a considerable influence not only in the initial stage but continues as a disturbing factor at all times.

Dr. F. C. Hotz of Chicago—I was very much interested in what Dr. Gifford said regarding the isolated foci in the cicatricial stage, for it fully tallies with my own observations; I have many times seen this. When the lid looks perfectly smooth we may on careful inspection find these little foci. Another matter of importance to scrutinize is the condition of the Meibomian glands, which often lead to the formation of small pus foci in the lid; these ought to be punctured. I was rather surprised to hear of the danger of adhesions forming in the retrotarsal folds. I have to relate that existing ulcerations have not been aggravated, and squeezing out the follicles never produces them, but on the contrary the beneficial effect of the mechanical removal of the follicles upon the inflammatory processes of the cornea, I have often remarked; within twenty-four hours I have seen the most irritated eyeballs become quiet and the inflammation of the cornea subside. I have never seen adhesions, and I wonder why it is. I can only account for it, by the different methods and probably different instruments used. It has been mentioned by Dr. Gifford that I suggested using the finger nails for squeezing the follicles. That might give the impression that I picked out the follicles, which is not correct. The way I do, and which I still regard as the most gentle way of evacuating the follicles in the upper lid, is to evert the lid, press the eyeball back, and while the thumb is on the everted surface of the lid the thumb of the other hand is placed under it, and you have the pressure of the two through the lid upon the fold, and the follicles can be evacuated, and you can gauge the pressure better by the fingers than by any instrument. On comparing the different forceps, I find that many of them have blades which when closed form almost scissor blades, and some are curved so that the conjunctiva is locked up in them, and when traction is made it is no wonder that laceration results. If the forceps blade is curved and absolutely rounded so that by the strongest pressure even the conjunctiva can not be held, extensive laceration can not occur. I would like to make one remark in reference to the implantation of skin in the lids. Dr. Gifford said that skin remains skin, and that is true, but if he says that desquamation of the skin continues and acts as an irritant, I beg to differ with him. I have never seen any irritation in my cases, and I have noticed after implanting skin-grafts, in cases of pterygium, that this desquamation ceases and the tissue looks smooth as conjunctiva, and you can scrape off no cells.

Dr. A. C. Coer of Carlinville, Ill.—I have a mental obliquity that makes me unable to see that trachoma is a disease of itself and of its own kind. I have seen nothing to convince me, and am not fully persuaded that it is so. I think it is a pathological condition growing out of a progressive inflammation of almost any kind. The follicular process is a diseased condition resulting from various causes (reading from manuscript). It was with great gratification I heard Dr. Knapp say that he had seen cases where no inflammation had preceded. I have everted the lid of persons who did not suppose they had any trouble with the eyes and discovered these sago-like grains. If you turn down the lower lid of many school children you will find the first stage of the follicular conjunctivitis, and it may get well without any treatment at all. If it goes on it will produce the condition you are familiar with, and I think may lead to thickening and chronic trouble.

Dr. G. C. Savage of Nashville—It would be well to go into the history of Dr. Gifford's own case; I have that history. At the same time that the Doctor's eye was infected his associate got some in his eye. The latter at once had instilled a 10 gr. solution of nitrate of silver. He did not develop a case of trachoma, and Dr. Gifford did. We had a similar example a few years ago. Dr. Price got some of this material in his eye. I gave him nitrate of silver immediately and he did not develop trachoma. That leads me to say that Muttermilch is not far from being right when he says that the germ is to be found early in the epithelium, and if we have some remedy to go into the epithelium and destroy them all will be well. We have a remedy that will destroy the epithelium, that is nitrate of silver. Acetic acid might be expected to cure them before they get into the epithelium. I have used silver in the strength of 120 gr. to the ounce and quickly neutralized it by potassium iodid. The first case of this kind occurred as an accident. I have entirely given up the use of sulphates in the treatment of conjunctival troubles, because I think I have in the acetates a class of remedies that accomplishes just as much without doing any harm.

Dr. H. V. Würdemann of Milwaukee—It is impossible to fully discuss this subject upon which many of us might write a volume, so I shall only take up a few of the points. It is certain to my mind that trachoma is a condition that supervenes upon a number of different irritations that might be caused by different infections. It is a condition largely brought about by mechanical irritation of a dust-filled atmosphere. In the Northwest we have a large foreign population, and we have the conditions in some portions of the country depending upon the atmosphere entirely. Our confrère, Ole Bull, states that he has seen but three or four cases of trachoma in his part of the country, although the condition of the peasantry is deplorable. He remarks that in his country washing and changing of the underwear is believed to be an unnecessary luxury, but even there he has seen very little trachoma. In regard to the use of powders, etc., I beg to remind Dr. Gifford that argentanum is of less strength than silver nitrate, and that comparisons should be made with comparative strengths. The principal point I want to bring forward is, that in local applications it is necessary to bring the fold into view and make the applications to that. Where the small hard granules appear they may be readily destroyed by the galvano-cautery. Burchard has made over three hundred and sixty applications to a single lid in several sittings, in many of them making fifty to one hundred punctures, and the cases have been cured.

Dr. S. M. Burnett of Washington, D. C.—I am sorry to hear so little said in regard to the hygienic treatment in the care and prevention of this disease. However gratifying to our vanity to perform brilliant operations, we must remember that in our profession it is a higher function to prevent than to cure disease. In order to prevent a disease it is necessary to know its natural history, and we should know the conditions of the individual and his surroundings. It seems to me that part of this subject has not been thoroughly studied. The time is coming when we should give more attention to the matter than we have in the past. It is only by collective investigation that we can study this in reference to the race, climate and habits of life and the conditions that surround the patient at the time of the development of this disease. When we do that we shall enter upon the peformance of our highest duties as medical men.

Dr. A. E. Bulson, Jr., of Fort Wayne, Ind.—One thing that interests me particularly is the question as to whether this disease is contagious. An instance that occurred to me has led me to believe that it is transmissible, and I will report the case. I attend an orphan asylum, located in a high and dry portion of the city and possessing good sanitary conditions. About two years ago my attention was called to a well-marked case of trachoma that had come into the institution a few days previously. I immediately informed the assistants to watch the case and keep it practically isolated, for otherwise we would have trouble with more cases. The advice was not heeded and we soon had a typic epidemic of trachoma in the institution. We had 165 cases and the last of them is not over yet. Those cases I consider all developed from the one child. It is not a dusty locality nor a dirty one, and the children are kept as neat and clean as possible. The treatment of these cases consisted principally of the use of Hodge's mixture, advocated by this Society in 1887. Some of the cases, eleven or twelve, were operated upon with Knapp's forceps. In a few of the cases powdered boracic acid was used and I was favorably impressed with its action.

Dr. A. E. Prince of Springfield, Ill.—Taking up Dr. Hotz's paper first, I would speak with reference to the line of incision. I commenced practicing the operation for inturned lids by making the incision recommended by Dr. Hotz, but I soon lowered the incision until I came to within 3 mm. of the lid margin. I did this almost without knowing it, and on one occasion, while reviewing the papers of Dr. Hotz, I found a footnote in which he described the operation of a Greek surgeon, and I found that I had been doing that operation. Dr. Knapp has called attention to the non-inflammatory trouble. I have seen three cases. In all these cases it disappeared without surgical treatment, and I think in such cases the

indication is not to operate. I have not seen the adhesions spoken of and I attribute it to the fact that the instruments I use have sharp edges, some of them almost scissors-like, as has been mentioned, and in the next place I apply cocain to prevent pain. I take a 10 per cent. solution, saturate a pledget of absorbent cotton, place it upon a piece of rubber tissue and slip that up in the retrotarsal fold and closing the lids leave it there for ten minutes. The cornea is protected, the cocain soaks into the lid and you can do the operation without any material pain.

SUBCUTANEOUS INJURIES OF SOFT PARTS.

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(*Concluded from p. 62.*)

SUBCUTANEOUS INJURIES OF THE ABDOMINAL ORGANS.

The stomach, when of normal size and in its proper position, is so well protected that it is seldom injured by non-penetrating forces. Contusions, laceration or complete rupture may result from a blow or kick, administered over the organ, when in a state of partial or complete distention. Violent emesis has caused rupture of the stomach in cases already weakened by constitutional or local disease. In O'Farrell's[14] case violent vomiting, during fever, caused a rupture of the posterior wall three inches long. Owing to the greater thickness of its walls and its better protection, the stomach is less frequently the subject of rupture than is the intestine. Other viscera are generally involved and the injury is, as a rule, fatal. The seat of the rupture is usually near the pylorus, or greater curvature, though it may be in any part. Morris's[15] case had a tear one and one-quarter inches long in the middle of the great curvature. Gaunett's[16] case had a vertical rupture, almost completely dividing the stomach. Elliot (July, 1895) found a linear tear in the anterior stomach wall, with rupture of the duodenum, caused by the kick of a horse; these wounds were sutured, but death followed, leaving, however, no traces of peritonitis.

Symptomatology.—There is pain and tenderness over the region of the abdomen. If the lesion is simply contusion, with partial laceration, the pain will be circumscribed. A limited inflammation follows, causing adhesion between the affected part and adjacent organs. Vomiting is usually present; bloody vomit indicates serious lesion of other viscera. The stomach may be inflated with hydrogen gas, or filtered air, through a stomach tube. If the walls of the stomach are intact, or but very slightly ruptured, it will be dilated, so that its contour can be made out by inspection and percussion. Complete rupture permits the gas to escape into the general abdominal cavity, causing no distention of the organ, and producing general tympanites. The following case[17] will give a clearer conception of these cases:

N. W., age 32, died June 21, 1892. The patient was supposed to have fallen from a moving train, striking on his abdomen. On admission to the hospital he complained of great pain and tenderness over the abdomen, especially over the upper part, where the skin showed some contusion. No paralysis. Pupils negative. No vomiting. Catheter drew off ℥viij of clear urine. Abdominal tympanites, tender and tense walls. Pulse 100 degrees and feeble.

Next day after admission.—Restless; thready, rapid pulse; expulsive vomiting of greenish fluid; abdominal distention with dulness, except over the epigastrium; exploratory puncture disclosed reddish fluid.

Postmortem examination.—Weight of body 200 pounds. Greenish discoloration. Nourishment good. Weight of heart 5 oz., 11 dr. Pleural adhesions over posterior of both lungs. Lungs edematous. Peritoneum contained about two quarts of reddish, acrid, shreddy fluid, with penetrating, enduring odor. Peritoneal layers rough, and covered here and there with detachable membranes, beneath which were small hemorrhages. Fluid found especially around spleen and beneath liver. There was a small tear in the stomach. Stomach: There was a rupture in the walls of the stomach, near the lesser curvature, two inches from the pylorus; it extended for two inches in the serous coat and to a less extent in the muscular coat, and finally made a small opening in the mucous membrane (Fig. 3). Near the esophagus was a small area of contusion in the stomach, with no lesion of the peritoneal or mucous coat. On the mucous surface there was found a small round perforating ulcer, one cm. in diameter, situated exactly opposite the tear described above, and without any thickened margins, but with much shining mucous membrane, in a very softened state, surrounding the opening. No lesion in intestines.

Diagnosis.—Rupture of stomach; diffuse peritonitis; gastro-malacia, or round ulcer.

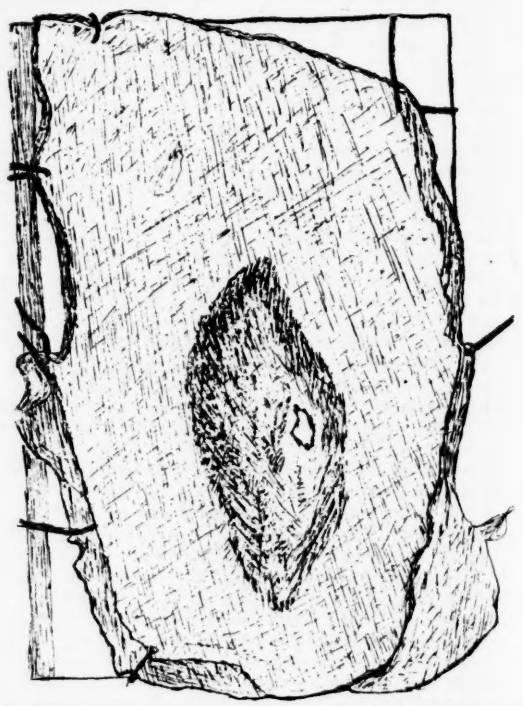

FIG. 3.—Traumatic rupture of the stomach. (Original from specimen in Rush Medical College Museum).

Owing to the fact that the stomach usually contains septic material, peritonitis would be expected to follow in all cases, though such does not seem to have been evident in Elliot's case, mentioned above. In the case just reported, gastro-malacia was an important factor in weakening the walls of the stomach. Shock is usually, if not invariably, attendant on such lesions.

Treatment.—In cases of simple contusion of the stomach, rest and external soothing applications will usually prove sufficient. No time is to be lost in treating complete rupture. The abdomen should be opened by an incision from the xiphoid cartilage to the umbilicus.[18] By repeated inflation the visceral wound can be readily found. If extravasation has taken place, the peritoneum should be thoroughly flushed with sterilized water, and carefully mopped out with an aseptic sponge. After seeing that the stomach is entirely empty and hemorrhage arrested, close the rent by two rows of sutures—the first row is applied to the muscular and mucous coats, and is buried by the second, which includes the peritoneum

14 Lancet, May 19, 1894.
15 Ashhurst's Encyclopedia, Vol. v, p. 69.
16 Warren: Museum of the Harvard Medical School.
17 From postmortem records of Dr. Hektoen.
18 American Text-Book of Surgery.

and enough of the muscular coat to furnish a good hold. It is well to use drainage if the peritoneum has been contaminated. This operation requires all the precaution necessary to avoid shock—external heat, stimulants sub-cutaneously and per rectum. Strychnin hypodermically, and whisky or brandy diluted with warm water, can usually be relied on as stimulants. The patient should be nourished by rectal alimentation for at least four days.

The liver is frequently the seat of contusions, which may result in abscess; in some cases, as in fatty liver, it may cause embolism.

Rupture of the liver is usually accompanied by serious lesions of other organs. Wounds of the liver heal readily, and hemorrhage is usually arrested by approximation of the torn edges. In a lad who died four days after being struck in his right side by the shaft of a runaway cab, an extensive tear of the liver, four inches in length, was found, adherent by a blood clot. In this case death was due to acute peritonitis, the skin and bones being unbroken.[19]

Wharry reports a case which illustrates how injuries to the liver accompany those of other organs.[20] The patient fell from a window, striking on the right side of the head and shoulder, and bending the trunk suddenly and violently upon itself. At the autopsy, the liver, lung and kidney on the right side were found to be extensively lacerated, but there was no apparent injury of the thoracic or abdominal walls. The weight of the liver, in this unusual contortion of the body, was one of the important factors in causing the injury.

Treatment.—Where the patient's condition is such as to justify even slight hope of success, the abdomen should be opened and the wound closed. Dalton estimates that in three out of four cases recovery follows operation after stab wounds of the liver, if sponged and drained without irrigation. The same, or an even better estimate would hold good for rupture. Vanverts[21] reported two cases of rupture, both of which were fatal; one in an hour and a half after injury, the other in twenty-four hours. He thought a prompt laparotomy might have saved the latter.

The spleen may suffer contusion from abdominal injuries, but other organs are involved. Traumatic rupture of the spleen results from direct violence, rarely from indirect. Falls, kicks and blows, fracture of the ribs, or a crushing force, as from the wheels of a vehicle, are the common causes. Fracture of the ribs was the commonest accompanying lesion in a number of cases studied. Among these cases was that of a child who had suffered a crushing injury, which had produced rupture of the spleen, total transverse rupture of the left kidney, rupture of the upper lobe of the left lung, with fractures of the seventh, eighth, tenth, eleventh and twelfth ribs; the broken ends of the seventh and eleventh ribs projected into the pleural and peritoneal cavities respectively. Emesis, convulsions and parturition are said to be rarer causative effects. Rupture of the spleen is usually fatal. If the patient is seen in time, an abdominal section should be made and hemorrhage stopped if possible. Excision of the spleen has been performed a number of times. Ashhurst[22] refers to twenty-one successful cases of splenectomy for traumatic conditions. Lane[23] reports two cases in which splenectomy was performed for rupture; both cases were fatal five hours after operation. Reigner[24] reports a successful case. Vulpius[25] maintains that this operation should be performed oftener. He has collected 117 cases of splenectomy, with a death rate of 50 per cent.; deducting thirty-two cases weakened by various pathologic conditions, the mortality of the remaining eighty-five cases is reduced to 33 per cent.

The pancreas, of all the abdominal organs, is the least liable to suffer traumatic injury. Rupture of the pancreas has resulted from severe contusing forces. Located in a very protected position, when injured, other important organs are complicated. If the pancreas should be crushed by a force not fatally injuring other organs or introducing septic material, the injury of itself need not prove fatal. Dr. Senn[26] has proven that subcutaneous crushing or comminution is, in itself, not a fatal or even dangerous injury, unless it interfere with the normal escape of pancreatic juice from the intact portion of the gland. Abdominal section will disclose the condition of the pancreas, and partial excision of the organ is justifiable in conditions seeming to demand it.

CONTUSED WOUNDS AND RUPTURES OF THE INTESTINES.

Postmortem examination has repeatedly demonstrated that blows, kicks, blunt and crushing forces may cause very serious injury to the intestines, without penetrating the abdominal wall. The force of a blow chiefly affects the distended intestines, and that portion directly contiguous to the point of impact.[27] While this may be the rule, there are exceptions, that while establishing the rule, are not self-explanatory. Why is it that some remote organ, carefully stowed away in seeming safety, behind a bulwark of other defending organs, is ruptured or destroyed by a force that leaves all the other organs unscathed? A rupture of the receptaculum chyli has been reported—all the other organs escaping serious injury.

Much damage can be done without external appearance of injury. Some years ago in the dissecting room of Harvard Medical School, a subject was found with the intestines torn in every direction and the spine extensively comminuted, yet there was no evidence of external injury. This subject, a man, had been caught between the dead-woods of two freight cars.

The nature of the traumatic force is an important element for consideration. The quick percussive or contusive blows, are not so frequently fatal as the crushing forces, though more common. A few cases of instant death have followed blows over the epigastrium. It is interesting to note the varied opinion of eminent authorities on this subject. Ashhurst[28] declared "that death may follow a severe blow over the abdomen." Bryant[29] says, "under certain circumstances, a trifling blow may give rise to alarming symptoms." Pirrie[30] considered blows over the stomach or duodenum more dangerous than over other parts of the abdomen. LeGros Clark[31] said, "that if the doctrine be true that a blow over the abdomen may cause death, it must be a very rare accident."

The writer noted, after inflating the intestines of a cadaver, that partial distension of the intestines

[19] Reported by Edgar Willett. [20] Brit. Med. Jour., June 14, 1890.
[21] Presse Méd., October 7, quoted in Am. Med. Jour., Nov. 14, 1897.
[22] Lancet, 1892, p. 692.
[23] Lancet, 1892.
[24] Encycl. Vol. v, p. 1103.
[25] American Text-Book of Surgery.
[26] Senn: Experimental Surgery.
[27] Dennis: Vol. iv, p. 291, et Davis.
[28] Ashhurst's Surgery, p. 391.
[29] Bryant: System of Surgery, p. 217.
[30] Principles of Surgery, p. 505. [31] Encycl. of Surgery, p. 988.

seemed to increase their mobility, while extreme distention made them stand out firm and resistant. If a contusing force had been applied to the abdomen while its walls were intact, it is easy to understand how the resistant, distended intestine would be much more liable to be bruised or ruptured by the bony spine behind, than the more mobile, partially distended intestine, which would tend to slip aside. The empty intestine is in a collapsed condition, and has little power of escaping injury, when exposed to severe blows or crushing forces; however, it may slip to one side of the bony framework and escape injury. There are many chances for the intestine to escape injury in contusion of the abdomen, and it is important to be mindful of this fact, in considering the early performance of laparotomy for rupture of the intestine. The most common causes of death, after contusion of the abdomen, are hemorrhage and shock.[32] Exploratory incision does not increase the danger, and should be performed. The danger is greatly increased by delay. Some cases of internal hemorrhage, otherwise fatal, can be saved by prompt action.

Dr. B. Farquhar Curtis, collected 116 cases of abdominal contusion, with the intention of studying their symptoms during the first six to twelve hours after injury. From the following facts, culled from his compilation, we can form our own judgment:

Causes in 87 cases reported:

	Cases.
Kick of horse or man	28
"Run-over" accident	13
Blow on abdomen by heavy weights	16
Blow on the abdomen by light weights	13
Fall upon projecting points	13
"Buffer accidents"	4

Nearly twice as many were caused by kicks as from any other cause. Evidently the great velocity and the small area of striking surface, are the elements that make a kick so dangerous. These same elements of causation enter into "falls upon projecting points." It is to be noted that "buffer accidents"—a term under which crushing injuries might be classified—are very rare, but four out of eighty-seven.

Location of the lesion, 113 cases reported:

	Cases.	Per Cent.
Injury to the duodenum	6	
Injury to the jejunum	44	
Injury to the ileum	38	
Injury to other parts of the small intestine	21	
Injury to the large intestine	4	
Injury to jejunum and ileum together	43	
Injury to first three feet of ileum	25	58
Injury to first one and one-half foot of jejunum	12	28
Injury to last one and one half foot of jejunum	6	14

These facts support the theory that the danger of rupture is greatest in those parts of the intestine that are the most fixed in their position in the abdomen, but the large intestine must be excepted, on account of its more sheltered position.

The following variety of signs and symptoms were mentioned in these reports:

Shock may be delayed, as noted in three cases, but was present in ninety-five cases, or in 80 per cent.

	Cases.
Consciousness at time of accident	54
Consciousness almost lost at time of accident	4
Consciousness lost at time of accident	11

Vomiting in seventy-two cases out of ninety in which it was mentioned. Urinary symptoms—condition noted in forty-seven cases.

	Cases.
Bloody urine	2

Bladder function frequently disturbed:

Retention	25
Urination difficult	1
Urination normal	17
Tenesmus	4

Pain in abdomen one of the first and most constant symptoms. Tenderness constant.

	Cases.
Distention of the abdomen	42
Distention of the abdomen absent in	16

Tension of abdominal muscles.

Tympanitic resonance.

An area of dulness, on percussion, was discovered in six cases in the early stage and in two cases in the later stages.

Loss of liver dulness.

Among the later symptoms, temperature, constipation and fecal vomiting were almost constant.

Duration of life—the average in 112 cases was forty-eight hours, after the accident.

FIG. 4.—Traumatic rupture of the small intestine. (Original from specimen in Rush Medical College Museum.)

We can now sum up the symptoms from the foregoing facts. There is shock, with or without loss of consciousness; vomiting is usually present with the first symptoms, and constipation and fecal vomiting are almost constant later symptoms; there may be retention, or difficult urination, while pain and tenderness are constant symptoms. There will be various signs noted on physical examination—dulness, tympanitic resonance, discoloration, varying with the case and stage of progress; the pulse rapid, weak and irregular at times, temperature subnormal in shock, but rises during peritonitis, when this follows. Figure 4, an illustration of a traumatic rupture of the intestine, is an original drawing from a specimen in Rush Medical College Museum, taken from a man killed by a violent kick in the abdomen, this rupture being the only resulting lesion discoverable.

[32] Curtis: Am. Jour. of Med. Sciences, October, 1887.

While, in our discussion some of the elements entering into the causation of subcutaneous wounds of the intestines have been considered, the condition of the tissues themselves has not been mentioned. Poorly nourished, diseased tissues will succumb most readily to any injurious force. Figure 5, drawn from a specimen in Rush Medical College Museum, illustrates this fact. The specimen consists of a portion of the pyloric end of the stomach and about two inches of the duodenum, taken from an old man who had received serious subcutaneous injuries, which ruptured a duodenal ulcer just below the pylorus and

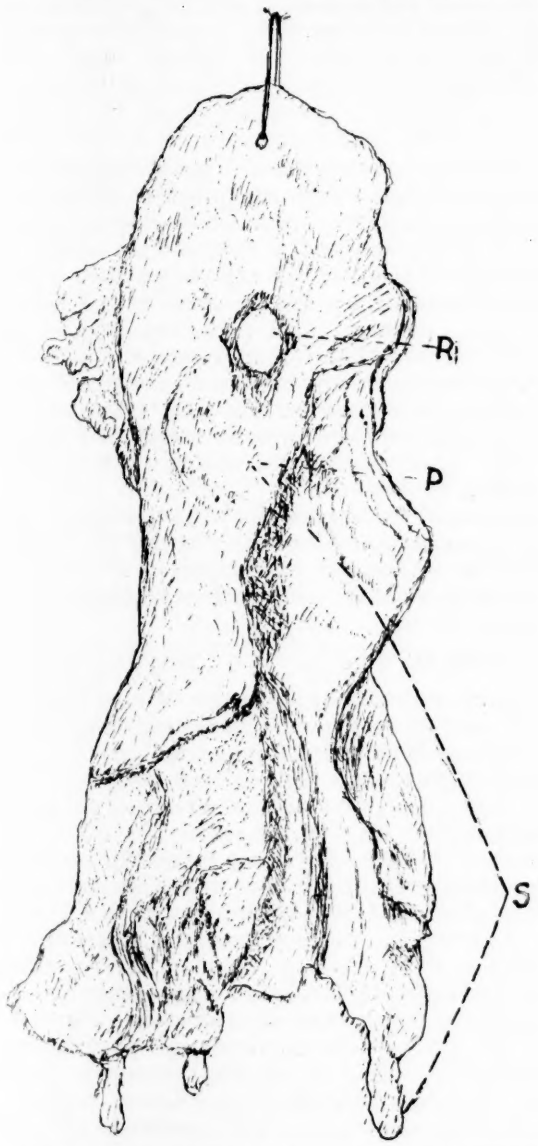

FIG. 5.—Traumatic rupture of duodenum. (Original from specimen in Rush Medical College Museum). R, rupture in duodenum just below the pylorus; P, pylorus; S, folds of stomach.

fractured the second, third, fourth and fifth ribs, on the right side, and the fifth on the left side, besides causing some other very superficial contusions not of a particularly serious nature. Had it not been for the weakened condition of the intestine, due to this ulcer, the lesion would probably not have resulted from a force of no greater energy than the one received.

Treatment.—Patients who have received injuries to the abdomen, which can be satisfactorily diagnosed as simple contusion, should be kept in bed and on an absolute diet for some days, when recovery, as a rule, follows.

If the symptoms point to rupture, laparotomy should be performed, as already suggested. The external incision should be made through the linea alba. First, check hemorrhage. The laceration may be readily found by using Dr. Senn's method, rectal insufflation with hydrogen gas or filtered air. Close up all lacerated wounds, being careful to secure apposition between healthy surfaces, and suture all rents in the mesentery. It is advised that an omental graft be placed over the contused areas surrounding lacerated wounds, so as to avoid subsequent perforation. Flush out the abdominal cavity thoroughly with sterilized water; insert ample drainage; then stimulate to overcome shock. Administer opiates to quiet the intestines and withhold food by the mouth for several days.

SUBCUTANEOUS INJURIES OF THE KIDNEYS.

The kidneys may suffer severe subcutaneous injury from external violence, such as blows and crushing-in the abdominal region; or internal strain, induced by unusual flexion or contortion of the body, as in Wharry's case before cited. Violent shock from falls may cause sudden compression from other organs, as the liver, and may produce contusion or rupture.

Symptomatology.—Simple contusion without laceration sometimes causes prostration and severe pain. There may be frequent and painful micturition, or suppression of urine. The face wears an anxious look. The pulse is rapid and there is fever. If the injury is severe, shock and collapse may follow. Hematuria is the important symptom in laceration and rupture; however, it must not be forgotten that hematuria may occur without any injury to the kidney. It may follow some injury of the abdominal wall, or the dislodgment of a thrombus. Sometimes it is due to transudation from the blood vessels. It may be due to tumor of the bladder, as in Newman's[33] case. Then again hematuria may be absent in rupture of the kidney. Maas reported seventy-one cases, six of which had no hematuria. Four cases in Keen's table[34] were without hematuria. Clots may form in the bladder, as in three of Maas' cases, and stricture or occlusion of the ureter may cause absence of external evidence of hemorrhage of the kidney.

Clot of the ureter may be dislodged and re-form, repetition of the process causing intermittent hematuria. Should it persist, hydro-nephrosis or atrophy results. In Butler's[35] case, a clot completely occluded the left ureter. There was total suppression of the urine for fourteen days. Death ensued, and at the postmortem, the *right kidney* was found cystic and atrophied to one-eighteenth its normal size. The *left kidney* was enlarged, showing evidence of old and recent inflammation; the ureter was distended with urine and blocked half way down with inspissated clots, which had entered the pelvis through a tear extending from one calyx far into the softened renal tissue. Both supra-renal bodies were decidedly atrophied, but no other signs of Addison's disease were present. As a rule, however, profuse hematuria follows injuries to the kidney, coming on at once or in a few hours, and lasting for days. It has been known not to appear until the eighth day.[36] Pain is usually the first symptom. It is most acute in the loin, but

[33] Quoted by Keen.
[34] Annals of Surgery, August, 1896.
[35] Lancet, Jan. 11, 1890.

often inside the thigh toward the knee, the testicle being retracted. The lumbar region and abdomen, on the side of the affected parts, are very tender, though no bruise may be visible. Passage of clots through the ureter gives acute paroxysms of pain, with nausea and vomiting. Pain is not a constant symptom, as shown by D'Arcy Power's case,[37] in which there was absence of pain with hematuria for two days. Hemorrhage may take place into the surrounding tissues or beneath the capsule. It is, as a rule, apparent early, and is recognized by the ordinary signs and symptoms of internal hemorrhage There will be an external increasing area of dulness and swelling in the lumbar, and, it may be, in the iliac regions. Swelling and dulness in intra-renal distention is circumscribed, more slowly formed, and later. If confined to the pelvis and ureter, the tumor will rarely be appreciable, unless it burrows under an easily separable capsule. If it rupture into the peritoneal cavity, a fatal result is probable, especially if a large vessel be ruptured, for there will be no pressure to resist blood extravasation. Secondary hemorrhage may occur. Royer[38] observed hematoma six weeks after injury.

Mortality and Treatment.[39]—Keen's tables give 118 cases of rupture of the kidney. Of this number one was under treatment when reported. Of the 117 cases, sixty-seven recovered and fifty died—a mortality of 42.7 per cent. From these cases the following seventeen deaths, in which treatment was futile or impossible, should be deducted:

The other kidney absent	1
Both kidneys injured	2
Found dead	2
Died of other injuries in addition to renal injuries	12
Total	17

Of the 100 remaining, sixty-seven recovered and thirty-three died—a mortality of 33 per cent. Early death, without nephrectomy, occurred in thirteen cases, eleven dying from shock and hemorrhage, and two from peritonitis in addition. There were ten late deaths without nephrectomy, all excepting two due to sepsis, one due to continuous, the other to secondary hemorrhage. Dr. Keen says, "had nephrectomy been done in the twenty-three cases, it is, I think, a fair presumption that ten of them would have recovered, which would reduce the mortality to 23 per cent." There were twenty-two of nephrectomy with eight deaths—a mortality of 36.4 per cent.; there were forty-two deaths in ninety-five cases without nephrectomy —a mortality of 44.2 per cent. This makes a difference of 8 per cent. in favor of nephrectomy, though the operation was only done in the most serious cases, which makes the value of this life-saving operation the more evident, when we recall that the large number of cases without operative interference, were the slighter cases of injury. It becomes evident from consideration of these facts, that operative measures would have saved many of the ninety-five unoperated cases. A study of this same table shows secondary nephrectomy to be nearly twice as fatal as primary—38.5 per cent. to 20 per cent.

Lumbar nephrectomy is the preferable operation, because it is less apt to cause infection of the peritoneal cavity. In cases pointing to intra-peritoneal hemorrhage, or to serious injury to other abdominal viscera, abdominal section should be made. Hence a very careful study of all the conditions in each case is absolutely necessary to the best success.

Fifty of the 118 cases in Keen's tables died. The causes of death were tabulated as follows:

Primary hemorrhage and shock	11
Continuous hemorrhage	1
Secondary hemorrhage	2
Injuries to other organs	12
Found dead	2
Absence of the other kidney	1
Peritonitis	5
Coma	2
Pneumonia and empyema	1
Suppuration and exhaustion	10
Anuria	1
Nephritis	1
Uncertain	1
Total	50

It is to be noted that primary hemorrhage and shock (eleven), continued hemorrhage (one), and secondary hemorrhage (two), caused fourteen deaths; and suppuration (ten), empyema (one), and peritonitis (five) caused sixteen deaths; this certainly proves that hemorrhage and sepsis are the two great causal factors of fatal kidney rupture. Since the majority of recoveries in rupture of the kidney are the less severe cases, and since the graver ones do not recover, unless by operative interference, it is clear that the duty of the physician or surgeon is to resort to exploratory incision. It adds but little risk and will save a greater proportion of lives.

Rupture of the ureters may be produced by the same or similar causes inducing injury of the kidney. Barker[40] and Godlee,[41] have reported a case each, in which nephrectomy was performed, and recovery followed.

SUBCUTANEOUS INJURY OF THE BLADDER.

A solution of continuity in the walls of the bladder may be caused, by violent concussion, or by displaced fragments of bone in fractures of the pelvis. Owing to the fact, that the organ is well protected by the pelvic bones, and is usually in a state of only partial distention, such injuries are rare.

Rupture of the bladder may follow violent concussion, especially if the organ be distended and the force be exerted on the lower abdominal region. This force may be from a kick, a blow or crushing pressure. The accident is more frequent in men than women, in whom parturition and continuous pressure by uterine or ovarian tumors, are causative factors. Some years ago, Prof. Hektoen reported a case, that is a good example of the effect of resistant pressure from tumors. A woman died after being kicked in the abdomen, and beaten by her brutal husband. The post-mortem examination showed a tear one and one-half inches long in the posterior wall of the urinary bladder, near the fundus. This tear was transverse, ragged, and free from signs of inflammation, as was also the peritoneum. In the uterus were three sub-serous fibro-myomata, which filled the pelvis and acted as a firm, resisting body, against which the bladder was pressed when injured.

We can gain some idea of the frequency of the injury from the fact that in 8,000 surgical cases in the Cook County Hospital, between 1889 and 1892, five were proven to be traumatic rupture of the blad-

[36] Burrow: Medical Press and Circular, London, 1890, N. S. L. 572. (Keen.)
[37] Lancet, Feb. 8, 1890.
[38] Traités des maladies des Reins.
[39] W. W. Keen: The Treatment of Traumatic Lesions of the Kidney, with Tables of 155 Cases; Annals of Surgery, August, 1896.
[40] Lancet, i. 95, 1885, quoted by Keen.
[41] Trans. Clin. Soc., xx. 219, quoted by Keen.

der.[42] The St. Bartholomew Hospital reported but two cases of injury to the bladder, out of a total of 16,711 surgical cases from 1869 to 1875.[42]

Symptomatology.—The symptoms may be obscure. Two out of seven cases reported by Dr. Herrick were not diagnosed until after death. The rupture may be intra- or extra-peritoneal. Fortunately, it is usually the latter. When extra-peritoneal, the signs of infiltration into the pre-vesical connective tissue or into the vesico-rectal or vesico-uterine space, are readily recognized. External palpation or the introduction of the finger into the rectum, will reveal a peculiar doughy condition of the tissues. The hypodermic needle may withdraw a few drops of bloody urine from the tissue. In case of intraperitoneal rupture, shock is more marked, and there is dulness in the hypogastric and inguinal regions. The passage of a catheter or sound may confirm a diagnosis. Should the sound be felt beneath the abdominal wall, rupture is demonstrated. The passage of a small amount of bloody urine, with or without the catheter, is a suspicious sign. If the urine is passed more readily by aid of the abdominal muscles and pressure on the abdominal wall, evidence of a more convincing nature is added, but is not conclusive.

Eight or ten ounces of liquid will distend the bladder, so that it will rise into the abdominal region; hence, inject at least this quantity of some aseptic fluid, as sterile water, into the bladder. In case but a part of the water is returned, and the viscus does not rise, the organ is ruptured. Filtered air, or hydrogen gas may be injected, and in case of a rupture into the peritoneum, it will escape into the general peritoneal cavity; or form emphysema of the cellular tissue, in case of extraperitoneal rupture. Peritonitis does not necessarily follow intraperitoneal rupture, because urine has been demonstrated to be aseptic The case of Dr. Hektoen referred to above did not contract peritonitis, though living nine days after the rupture, and with her abdominal organs bathed in urine.

The symptoms are masked by drunkenness, pain and shock being but slight. That drunkenness is an important etiologic factor, is well known. "It furnishes the abundant secretion of urine; a paretic, and consequently distended bladder, which rises above the pelvic brim where it is exposed to injury; and a relaxed abdominal wall, so that the force strikes with unchecked vigor upon the viscus with the walls tightly stretched."[43]

Figure 6 represents a bladder with a very extensive rupture in its posterior wall, which readily allowed a passage into the peritoneal cavity. The patient passed his urine by aid of the abdominal muscles, pressing the urine through this very large rent. This caused a diagnosis against rupture by a consultant.

Peritonitis did not occur until after catheterization by some five different persons. The infection was undoubtedly due to the use of a septic catheter.

The patient in this case was drunk at the time of injury, and the symptoms were so masked that the physician originally called in thought it merely a pain in the abdomen and of no serious nature. The temperature never rose higher than 100 F., and the pulse was about 120. A gradual failure of strength took place and the patient died fifty-two hours after admission to Dr. C. W. Earle's hospital, and four days after being seen by the first physician. This case was reported by Dr. Jas. B. Herrick, who called particular attention to the fact that "when the rent is large and especially when there is no peritonitis, bloody urine may be obtained in quantity and in a stream."

We are inclined to the belief that operative interference when free from sepsis, would save all such cases or at least a large percentage.

Treatment.—In extraperitoneal rupture, immediate and free incision into the infiltrated regions, should be made. In order to find the rent in the organ, an incision should be made, as in suprapubic lithotomy. The rent should be found and carefully sewed up by Lembert's sutures. Fine silk is the best material, and should be inserted through the peritoneal and muscular coat, but not the mucous coat. It is well to test the sutures by distending the bladder before closing the abdominal incision. Intraperitoneal rupture demands a longer abdominal incision. The peritoneum must be thoroughly flushed out with aseptic water, or bichlorid solution (1–2000). In case of peritonitis, a drainage tube should be inserted. When it is recalled that intraperitoneal rupture is almost invariably fatal without operative intervention, the physician's duty is plainly indicated—operative interference is imperative.

FIG. 6.—Rupture of the posterior wall of the bladder. (Original from specimen in Rush Medical College Museum).

INJURIES OF THE PENIS AND URETHRA.

It is seldom that wounds of the penis are met with. Fracture of penis has been known to occur, when the organ was in a state of extreme erection. Laceration

[42] Herrick: The Medical News, Feb. 25, 1893.
[43] Herrick: The Medical News, Feb. 25, 1893.

of the organ sometimes occurs. The treatment for such injuries is the same as for other parts similarly affected.

Rupture of the pendulous portion of the urethra is rare. While it is difficult to treat, it is not dangerous as a rule. The symptoms are what one would expect, pain, hemorrhage and swelling. Evaporating lotions, rest and very gentle catheterization is all that will usually be required for satisfactory results. Rupture of the urethra may be due to instrumental violence. Most cases reported have been caused by falling astride of resistant bodies. The writer had occasion some years ago, to assist in caring for a young man who had fallen astride a timber, literally crushing the bulbous portion of his urethra. In these injuries, the pubic bones and the vulnerating bodies furnish the two hard, unyielding factors, between which the soft urethra is contused, lacerated or crushed. There have been a number of explanations for the mechanism of urethral rupture, but the one just mentioned is sufficient for all practical purposes.

Treatment.—In mild cases, periodic use of the soft catheter, well greased with carbolized oil, may be sufficient, provided the patient is kept at rest. Fever and local swelling call for decided steps. Should extravasation be marked, and it be possible to pass a full-sized catheter, the instrument should be allowed to remain. The tissues involved in the extravasation should be laid open. It may be impossible in some cases to find the proximal end of the torn urethra, even after perineal section. Such was the condition in the case mentioned above; suprapubic cystotomy was performed, and retrograde catheterization soon located the proximal end. An elastic catheter was allowed to remain and the perineal wound was sutured. In the course of three or four weeks, the patient was discharged, after having been instructed in the art of passing the sound on himself, to avoid the cicatricial tissues closing the urethra by contraction. Where possible, it seems wisest to suture the divided ends of the urethra with catgut. Do not include the mucous membrane in the sutures.

[NOTE—Owing to limited time it has been impossible to treat this subject as fully as the writer desired. For this reason he did not deem it advisable to undertake the discussion of subcutaneous injuries to the brain. Only traumatic injuries of subcutaneous soft parts have been considered in this essay. The writer wishes to acknowledge his indebtedness to the various sources from which the information in the foregoing pages has been obtained. It has been his intention to mention by proper references, the authorities to whom credit is due. He is especially grateful to Prof. L. Hektoen for the use of his postmortem records, from which much very valuable information was acquired; also for the use of specimens from the Rush Medical College Museum, which enables the presentation of four original illustrations in this production.]

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from p. 92.*)

XX.—GUNSHOT WOUNDS, AMPUTATION, EXARTICULATION, RESECTION.

Gunshot wounds in general; Gunshot fractures; Conservative surgery; Gunshot wounds of the joints; Injuries by cannon balls; Primary or secondary amputation; Method of amputation; Exarticulation; Resections.

The twentieth chapter of our historical work! Has not the patience of the reader been already exhausted? Has not my work been already laid aside, with a "never more"? I would give something to know as to this. Yet to every colleague who has remained true to me until now I will extend a grateful hand and seek to refresh his severely tried patience, at the close, by a theme of more general interest, *gunshot wounds.*

To what teachings did they pay allegiance, in the year 1750, in case of a simple gunshot wound? Even then had begun, as previously mentioned, an opposition to the excessive probing of gunshot wounds. They distinguished a primitive and consecutive hemorrhage, which, if the scab dropped off, appeared more frequently at night than during the day. The bullets (of lead, iron and copper) were extracted as soon as they could be distinctly felt; a number of instruments were invented for that purpose, and the patient was placed in the same position as that in which he had received the wound. This principle originated with A. Paré. It was the general rule to enlarge the openings of every gunshot wound as soon as possible. Formerly this was done more frequently in a bloodless way, by means of absorbent lint and dilation, later with the knife. They also began to stuff up the path of the bullet with lint and to close it with the seton. The bandage materials were mostly irritating in order to accomplish a quick shedding of the scab and an abundant granulation.

It was characteristic of the advancement in the teachings on gunshot wounds, that it took place in a purely empiric way. There was no mention of principles based upon a physiologic foundation. How the healing process in the path of the bullet took place, no one knew; how the size of the wound was proportionate to the velocity of the bullet, no one considered. These and similar questions were first raised by John Hunter. He accordingly looked upon the accomplishments of the French military surgeons with insignificance, and said that "among the French the art of destruction is very highly perfected, while that of healing has not reached a like perfection. . . There has been little written on gunshot wounds and what has been written is so superficial that it deserves no special attention. Simple practice without principles appears to have been the guide of those who have occupied themselves with this branch of surgery. And if one fixes his eyes upon the practice hitherto followed, he finds it extremely limited and almost reduced to the ordinary rules of surgery." Hennen later sought to detract from these complaints when he extolled to the highest point the French surgeons before Hunter's time. We will submit a few of Hunter's theoretic doctrines on detailed questions. He distinguished gunshot wounds from other wounds, especially when fresh; then they demanded a particular kind of treatment. This classification depended chiefly upon the velocity of the bullet. If this was slight it occasioned only a small injury, seldom a fracture. If the velocity of the bullet was sufficient to fracture the bones the shattering was much more extensive than in the case of greater velocity; in the latter case the bullet carried away a piece of the bone almost as if by pincers. So gunshot wounds sometimes simulated a knife wound. The denser the bullet the less matter was rubbed off from it, and this was more abundant at the entering point than at the exit (Le Dran had taught the distinction between the two). The reddening of the skin in the canal of a superficial shot

wound was, according to Hunter, by no means of an inflammatory nature. He said it was like the rosiness of the cheeks; that the small blood-vessels allowed the red part of the blood to flow through more readily than usual. Healing could only take place by way of suppuration, although when there was very little contusion at the point of exit a prima intentio was possible. As a rule, Hunter observed the beginning of the healing at the point of exit, sometimes the contrary; it appeared to him to be the rule that the lower end of the bullet canal healed more quickly than the other.

In general they believed in the existence of the so-called air grazing shots, and attributed the most dangerous injuries from the simple grazing of the bullet to the pressure of the air. Tissot estimated the force of this and Plenk ascribed it to the electricity generated in the bullet by the explosion. The first who contradicted the air grazing shot was le Vacher of Bisançon (1768); he traced the injuries to an actual contact of the bullet with the body and declared them to be simple grazing shots. Richter agreed with him.

The after-ills in severe shot wounds were in general known; the pyemic fevers can be easily studied from the writings of Bilguer and Larrey. It is striking that Hunter, who was acquainted with phlebitis and expressed the supposition that its fatal results depended on the entrance of the pus into the circulation, said nothing of pyemia.

Among the practical questions, the *enlargement of the path of the shot* was earnestly discussed by surgeons. They adduced as advantages that it facilitated the extraction of foreign bodies, created a better outflow for the extravasation, transformed crooked wounds into straight ones, etc. The incision should be made immediately in order to promote the expansion, and should extend throughout the whole path of the bullet to the bottom of the wound, and in fractures should reach the bones and indeed extend over the whole length of these. Being earnestly recommended by A. Paré and Wiseman, they found acceptance everywhere and in France, as well as in Germany, were sadly abused. They were, indeed, legally prescribed in the Austrian regulations for field-surgeons (1788). Even at the end of the century they were recommended by J. Bell, and especially by Percy, who sought the first indications of healing in the transformation, so far as possible, of shot wounds into knife wounds. One of the first who opposed this nuisance was Ravaton. He allowed enlargement only in order to promote the discharge of pus, but never if there was danger of cutting through large blood-vessels and nerves. That he considered it necessary to describe the incision on every separate part of the body shows the low grade of anatomic culture among his countrymen. Theden had, after increased experience, abandoned the common use of the incision. J. Hunter especially deserves credit for having confined the incisions to narrower limits. Yet it must be recognized that Jackson of Dublin had, a few years before him, energetically opposed the principle of enlargement (*London Med. Jour.*, xi, 1790). He observed that it increased inflammation, delayed the healing, and caused danger of joint affections in consequence of the admission of air. Desault and the other surgeons in the Hôtel Dieu (1792) had long before desisted from cutting into gunshot wounds when Hunter had entirely discarded the method as an ordinary practice (1794). It contradicted the precept which held good in all other wounds, that as such they should not be enlarged. The practice in gunshot wounds should be also that of civil surgery. Without promoting the expansion the incisions increased the inflammation, readily closed again, and delayed the healing. Hunter considered dilation as required only under certain definite indications: 1. If foreign bodies irritated or pressed against an important part. 2. If a ligature was demanded for stopping hemorrhage. 3. If in a head wound a fracture was presumable. 4 and 5. If bone splinters and foreign bodies could be immediately extracted with advantage and their retention would have evil consequences. 6. If viscera protruded from the wound (bowel). 7. If important organs are compressed, as the lungs in case of rib fractures. On the other hand, Hunter limited the indications too narrowly; for when the bullet lay at some distance from the sound membrane and could be felt, then one should wait until the entering point had become inflamed. As a reason for this principle he alleged that the wound could readily heal with the bullet inside, that the inflammation occurred, therefore, not from the injury, but from the contact of the part with the external air and hence the admission of air must be prevented. In respect to the extraction of the bullet, he counted too much upon the help of nature and argued that the direction of the bullet was quite uncertain, for the heavier it was the easier would it curve and run obliquely when resisted. B. Bell and Boy also condemned the abuse of dilation. The latter criticized the extraction of a foreign body when the operation had more unfavorable results than the presence of the bullet. If it was necessary, the earlier it was done the better.

The number of *instruments for the extraction of bullets* had become very large; Ravaton alone had invented three. The apparatus grew simpler with time. Hunter came to think the usual ball extractor almost inapplicable. Many would banish all the hooks, screws, bores and ball extractors, and extract the bullet with the finger, or if that failed with a pair of small pincers (Richter). Finally they used almost entirely small bullet-tweezers, spoons and bores (Percy). The movement of balls healed in the bones was known; Ravaton observed a bullet situated in the antr. Highm. for twenty-five years, after which time it came out through the palate. Le Dran noticed one a year in the sella turcica, Pallas one for fifteen years in the os ethmoidale.

The *bandage material* also gradually became simpler, both in respect to number and to composition. The one bound fresh gunshot wounds with irritants (alcohol, wine and salt-water) in order to restore the weakened vital force of the vessels and to hasten the separation of dead from living matter. Another applied emollient, sedative remedies (tepid water and digestive salves), which were said to support the free discharge of secretions but to allay swelling and inflammation. As a rule the whole wound was filled loosely with lint that it might absorb the pus and protect the muscles from sharp splinters of bone. Dry lint was used by Ravaton, and over it a diachylon plaster and a large compress wet with alcohol. On the third day he had the bandage removed, the channel of the shot syringed with oil, ungt. basilicum laid in the wound and over that a pledget with the same salve, and a compress dipped in vulnerary water applied. The bandage must not exert the slightest

pressure, and was removed twice a day. Theden's arquebusade-water made something of a sensation: "Take sorrel water and alcohol, one and one-half pounds of each, half a pound of white sugar and five ounces of spirits of vitriol; mix these and digest the mixture for eight days, then filter it." Theden preferred this arquebusade to all other remedies, not only for gunshot wounds but also for contusions, burns and swelling in fractures, luxations, etc. Surgeons were not united as to the use of warm and cold applications. Theden changed his opinions in so far that he had at first regarded warm poultices as entirely necessary, but in later years often found warmth injurious and observed the best results from cold applications. Jackson's experience was similar. On the contrary Hunter considered the cataplasma the best bandage for gunshot wounds and most lacerated wounds. B. Bell took the middle course, in that he used poultices only in the beginning but removed them as soon as suppuration ensued, because they relaxed the wound and increased suppuration unnecessarily. The Frenchman Boy, who a year later than Hunter, and entirely in the spirit of this great surgeon, wrote an excellent work without mentioning him, recommended common water, at first tepid but gradually cooler. "All salves and the damnable irritants are of no avail. . . . Let us simplify whatever can be simplified." He protested against the general use of poultices, and used them only to induce suppuration. Until the appearance of suppuration he rarely bandaged, and then kept the bandage wet. The injured limb was laid so that the muscles were relaxed as much as possible, and a bandage adjusted from the under part of the limb across the wound and above it in order to diminish the involuntary muscular movement and the pain; he laid the greatest stress in general upon the methodic adjustment of the bandage. He decried the drawing of a seton through fresh gunshot wounds (Bell), and availed himself of this instrument only in case the pus could not flow freely. Boy sought to restore to its rightful position the use of the syringe, against which a prejudice prevailed, but he cautioned against too strong injections on account of the possible laceration of the cellular tissue. After Mursinna had called attention (1796) to the fact that in many injuries the simplest treatment is the best, that gunshot wounds with injuries of the bones healed more easily and quickly if they were not cut or stopped up, but were only covered with a common wound salve, a great simplification in the treatment of wounds and the technique of bandaging began in the first part of our century with V. von Kern of Vienna (1810). With the exception of lukewarm water, which he recommended as the only covering for a suppurating wound, he considered that there is "no other salve nor balsam to further healing but the balsam which nature herself offers and which no apothecary can give us; the wound itself provides it. Accordingly everything which is used externally with this object is thoroughly injurious." With inspiration Kern said in a pamphlet to the surgeons in the Napoleonic wars, "let us also lay aside all salves and balsams; let us once forget the cinchona decoctions and all other expensive external remedies which have been hitherto employed. Let us give up the use of lint and all the bandages prepared from it, namely, the setons, pledgets and the like; they are foreign bodies, they can only irritate. Let us abolish the bad custom of filling wounds with lint; for it hinders the complete discharge of matter produced by the pus and induces putrefaction of the wound. Let us desist from the use of artificial bandages; it is only expensive, for it wastes so much linen which might be turned to other uses! Let us avoid all those liquid balsams which are injected into the channels of gunshot wounds; let us discontinue the rigid pressure with the hand along the course of these channels in order to force matter out through them. It only irritates the injured part and maintains a continual condition of inflammation! . . . . Follow my example. By the use of these principles you will save the soldiers endless pain and millions to the State."

In the general treatment *blood-letting* stood foremost. At first wantonly abused, they later began to limit it. It was always evident that the soldiers, exhausted by poor food and fatigue, bore repeated bleeding badly (Lombard), and that the strength must be preserved for the excessive suppuration. Therefore Hunter permitted only a moderate letting of blood, and Boy discarded it altogether as a general remedy. More and more the debilitating treatment was replaced by an invigorating one. Peruvian bark came into use, especially in England, in inflammations following injuries and operations (Hunter), and also in suppuration and gangrene.

They sought to arrest *hemorrhages* (see Chap. 14) from gunshot wounds when only a branch of an artery was injured, by direct ligature, or if that failed, by styptics and compression. But if a large artery bled they amputated (Ravaton). Bilguer had already conceived the idea of binding the main stem of the femoralis and the axillaris, in the hope that the small side branches would enlarge; even in case of shattered bones with arterial hemorrhage he advised ligature or compression and opposed amputation. Then Theden sought to displace the ligature with the tampon. Boy declared compression entirely unreliable, always used a stricture and only in the rarest cases considered the application of a ligature necessary. Since Larrey the laceration of the main artery was no longer regarded as an indication for amputation.

In case of *gunshot fractures* they amputated with a readiness scarcely to be believed, until in the middle of the century. In order to explain this we must anticipate the history of amputation. In Heister's time the rule was to amputate every limb with a shattered bone or an injured joint; the possibility of preserving it was considered as exceptional. J. L. Petit had advanced this doctrine. The causes of this mania for amputation reach far backward. In the fifteenth and the first of the sixteenth centuries the operation was always unusual but crude. The better surgeons sought with great patience to heal the most dangerous injuries and regarded amputation as the last resort (F. Würtz and Paré). Then came the age of Louis XIV. with its crowds of ignorant barbers. But the war developed a few skilled surgeons who, through large and bold undertakings, quickly became celebrated. But instead of improving the miserable methods in the treatment of gunshot fractures, they went over to the operation. Ever since Paré had applied the ligature after amputations and Morel had invented the tourniquet, the great fear of hemorrhage had vanished; surgeons had become more courageous. It was thought that the rarity of operations was to blame for many deaths, while the enormous mortality in the hospitals was due only to the bad treatment of the fractures. The men who fell into this error set the fashion for all Europe; in a

short time amputation became the most common operation. For example, Schmucker saw, in the year 1738, in the Hôtel Dieu in Paris, a double amputation of both thighs made on account of a simple fracture. The French surgeons in the Prussian army, who came from this school, cut off arms and legs without discrimination. A reaction began. Le Dran, indeed, and Bagieu were already convinced that amputations were conducted without due consideration; but the Frenchman Boucher first opposed the abuse in gunshot fractures, especially. He showed (Mém. de l'acad. de chir. ii, p. 304) that two-thirds of those so operated upon almost always died, while of 165 fractures which were treated without amputation not one resulted fatally. When the Académie de chirurgie (1754) offered a prize question on the necessity of amputations and the time for them, Faure won the prize with the answer that one should amputate in gunshot fractures in the second period.

During these discussions Bilguer appeared (1761). He boldly resisted the generally prevailing views and threw the gauntlet to all surgeons. He made it a rule to treat all gunshot fractures and joint injuries conservatively and to regard amputation as an exception. *Our conservative surgery began with Bilguer.* He protested against most of the indications for amputation and admitted only such a laceration of a main artery that the nourishment of the limb seemed impossible and extensive inflammation. Bilguer treated gunshot fractures in the following way: The wound was boldly enlarged by an incision which reached the bone and extended the length of the muscle. Loose splinters and foreign bodies were imdiately extracted, firmly fastened fragments were brought to their proper position with the finger and left to nature, which sometimes healed them. Sharp, protruding ends were sawed off with a small saw, "for which one must have various thin, narrow, curved and straight blades." "In this way we have, with the greatest success, sawed pieces of bone three or four inches and more, from the bones of the lower leg, forearm and upper arm." Bones of the head and foot should be obstructed, be separated and taken out. A bullet fastened in the cavity of a bone was removed with the trepan. The wound was filled with lint from both openings of the channel, pledgets, compresses and a circular bandage laid around it and these were wet, for three or four days, with spiritus vini. Later he recommended digestive salve and emollients. The limb was lain in extension between board, pastebord or straw splints. Bilguer openly admitted that this conservative method caused the patient much pain and the surgeon much trouble and that it would bring about a cure only in the hands of skilled and experienced surgeons. If one asks for the results which he reported, the following figures give the answer: During the Seven Years' War he attended 6,618 wounded in his hospital, from its establishment to its suspension. Of these, 5,557 men were again fit for active service, 195 were half invalids, *i. e.*, fit for the garrison and civil service, 213 complete invalids, among whom not a single amputation had been made, and 653 died. Those 408 invalids all had "severe fractures, that is, shattered and bruised injuries to the bones . . . for at least everyone among us knows very well that none of our soldiers could become invalids on account of head and flesh wounds." He added that "it might be said that perhaps among those who died from their shattered limbs, some might have been saved if their limbs had been amputated at the right time and in the proper manner," but I also for my part can assert, that of the very many who during the first years of this war lost the limbs on account of severe wounds scarcely one or two have survived." And amputation in the field seemed to him very rarely indicated because it was impossible to perform it on the battle-field and a secondary amputation should be forbidden for many reasons. "Throughout the whole Seven Years' War I have had no one under my supervision lose a limb by amputation, and I can bring forward 1,800 cases in which I have saved the wounded from this most horrible operation." Caries, which might develop after gunshot fractures, did not appear to him an indication for amputation. "For caries we have found it necessary to do nothing more than expose the bones more or less according to the nature of the difficulty, then to scrape them with a knife or perforate them with a small bore or a sharp brad, or, if the caries extended to the other surface of the bone, to bore with a tampon in more than one place, or even, as in case of the hands and feet, to remove whole carious bones, or in large bones entire carious parts, with the help of this or that instrument and of the hand." In order to confirm his conservative principles by facts Bilguer mentions, in his work on amputations (1761), fifty-one cases of serious injuries to the bones, which had been treated in the field hospital at Torgau with the best success, by him and by other surgeons of the army. After the close of the war, in his surgical observations (1763), he was able to add 118 likewise conservatively treated cases "of shattered limbs and joint injuries" He discussed only severe injuries (extensive destruction of the diaphysis or the joints of hollow bones, which frequently were occasioned by canister shot or cannon balls). Among these 169 cases, 9 fractures of the thigh were healed, 42 of the lower leg, 19 of the ankle, 11 of the foot, one of the shoulder joint, 9 of the head of the humerus (among them one in which the humerus was exarticulated almost entirely from the shoulder joint by a blow), 16 of the diaphysis of the upper arm, 22 of the elbow joint, 9 of the forearm, 3 of the wrist, 8 of the hand (among them 5 in which the hand was shot or cut half off), and 6 fractures of various bones of the extremities.

Bilguer's service was extraordinarily great for that time of mania for amputation. But his mistake was in the extravagance that would displace amputation almost altogether. Although a hundred years have passed we have not the right to cast a stone at him on that account. Though conservative surgery has made so great progress since the time when, sometimes practiced with foolhardiness, it cost so many lives, we are not yet through. It is to Bilguer's discredit that he published cures almost entirely and no fatalities, and that he noticed many observations of entirely unknown surgeons, upon which one could not rely. Certain of his contemporaries might assert that no surgeon merited so much from the human race as he, and shortly afterward Ravaton also might have come forward with conservative cures of complicated gunshot fractures (l. c. 2. Ausgabe 1768; this is lacking in the first edition); they raged against Bilguer from all sides. Among Frenchmen, Martinière charged against him that the many incisions caused more pain than amputation, which led to a quicker and more certain healing, and finally that a stiff and useless leg

was the price of that useless treatment extending over months. And Morand thought this treatment "so cruel that one is dismayed even to read of it," and the number of external remedies so great that one is reminded of the charlatan, and that Bilguer's prescription's were faulty and too expensive. For example, a warm poultice applied in case of gangrene, cost 2 livres 10 sous. "Much is German balderdash . ., much is written obscurely without intelligence and without tact . . ., is madness a proper term to use of French surgeons who have the greatest reputation of any in the world?" An opposition was also raised in England. According to Charles White and Pott there were always some cases in which amputation was unavoidable, and Pott regarded the vaunting of remedies by which amputation was rendered unnecessary as quackery. In case of shattered bones he amputated immediately before inflammation had set in; for if this had already arisen, or if the air had already penetrated with injurious effect, then the operation only hastened death. The question as to whether more men with complicated fractures died without amputation than after the operation, according to his opinion, a single surgeon could never answer; but according to all experience the danger to life is greater if one seeks to save the limb. The objections of Pott and Morand, with whom Van Gesscher allied himself in an exhaustive criticism, were intellectual and were written with great insight, insomuch that they contributed much to support the doctrines of the German surgeons in their development. The attacks upon Bilguer from abroad had no end until he found a warm friend in the Englishman, Kirkland. The latter loudly proclaimed the principle that far more skill and art were required to save a limb than to cut it off, for there doubtless are cases when operation is unavoidable. "One must obviously seek to save the limb when there is even a slight probability that it can be saved;" however, the only consideration should not be as to whether there is less danger with amputation than without it. What man would gladly incur some danger in order to save a limb, . . . it is incredible what nature can do." Kirkland did not consider amputation absolutely indicated either in fractures of the joints, wounds of the large blood vessels or in caries. With certain limitations B. Bell agreed with Bilguer and would not amputate in case of fractures with slight injury to the soft parts, but would operate immediately in severe breaks with splinters, especially if they pressed into the joint. In doubtful cases he advised conservative treatment, since if that failed there was always time for an operation, and the secondary often gave better results than the primary. Frequently external conditions decided it. For example, Bell made it a rule to amputate after battles all complicated gunshot fractures immediately. To be sure a few limbs were lost in that way, but certainly far more human lives were saved, which without amputation would have been lost. If we look about us at Bilguer's countrymen we observe Schmucker take the golden middle course. He charged against some French surgeons that they often amputated unnecessarily; but there were always cases when amputation could not be avoided without exposing the patient to mortal danger. "It is just as extravagant to wish to abolish amputations altogether as to cut off all limbs without distinction. . . . Whether it is a blessing to live after amputation is a matter concerning which the surgeon does not have to discriminate; his duty is to preserve life as long as possible." Richter, who advised immediate amputation in case of severe splintering of the joints and laceration of the larger blood vessels and nerves, considered it impossible to give any general rule for the rest, since each individual case must be specially judged.

It was sought to cure gunshot fractures of the diaphysis of the *upper arm* in metal splints with the elbow joint bent, while fractures of the caput humeri and of the lower condyles for the most part demanded amputation (Ravaton). Attempts were made to cure considerable injuries by the conservative course. Once a humerus was shattered two inches below the shoulder joint, and the bones, muscles and cuticle so lacerated that the forearm hung from the upper arm by only a mass of muscles an inch and a half thick, which, by good fortune contained the large vessels and nerves. A cure was accomplished after three months with two splints (Seeliger). Gunshot fractures of the *forearm* had a better prognosis than that of the upper arm; there was no longer any talk of amputation.

The great danger in gunshot fractures of the *thigh* was sufficiently recognized. Ravaton indeed observed imperfect cures, but death always ensued if the bone was broken in its entire thickness. Then in spite of great care no remedy availed; neither incision, extraction of the splinters, nor the most careful bandaging in a metal case with apertures, in an elevated position. Ravaton therefore advised amputation and suggested a method of exarticulation. On the contrary he cured fractures of the trochanter after extraction of the ball if it was lodged in one of the condyles. Isolated cures of gunshot fractures of the diaphysis were indeed known to J. L. Petit who, however, preferred amputation for the sake of safety, also to Bilguer and Desault and to J. Hunter who saw such a one proceed successfully, as a simple fracture. Nevertheless, amputation was in general agreed upon. Schmucker regarded fractures close above the knee as less dangerous on account of the few musculatures, and considered an operation not urgently indicated, but amputated immediately in case the bone was broken in the middle or higher up. Boy's opinion was clear and decided. Convinced of the extraordinarily difficult treatment of all fractures of the thigh whose fragments it was almost impossible to fix, impressed by the especially great danger in splintered fractures, particularly in the upper third of the bone, he said: "Amputation is necessary in most femur fractures; otherwise the patient dies of exhaustion after three or four or even six months. Many surgeons could not decide upon amputation, because they saw so many of those operated on die, and because if one did not amputate the patient lived a while and thus the good reputation of the surgeon was better guarded. What egoism! One should first do his duty and take the subject of good reputation into consideration afterward. Why allow a man to suffer for six months if he must die in the end? The surgeon must know how to decide; too much fear is often more injurious than rashness. Certainly one should not abuse operations, but he is culpable if he does not operate when the conditions demand it. If one would listen to certain writers there are almost no conditions which allow amputation; they consider it a painful remedy to be entirely banished by friends of humanity. Yet how easy it is to operate and to write. But, unfortu-

nately, a battle-field and a hospital have nothing in common with the ideas which an author in his study forms of them. Even out of love to humanity one must have recourse to great operations, and it is a very deceitful remedy which only too often allows people to die who might yet serve the fatherland and their families for a long time." For treatment of gunshot fractures of the lower leg metal boots with suspension were used (Ravaton), Petit's cradle (Bilguer) and pasteboard and splints (Schmucker).

A similar change from operative to conservative treatment in *gunshot wounds of the joints* was initiated. They had always operated until Bilguer and Ravaton taught to avoid the operation, and the latter in particular insisted upon the curability of those injuries in which the ball had only made an aperture without breaking the bone. The former said: "When a ball has passed entirely through the elbow or knee joint and thereby injured and shattered more than one bone we find no method of treatment safer than that by which we enlarge the wound sufficiently to loosen the pieces of bone properly in the most extreme cases and especially in the knee-joint, not even sparing the ligaments, but proceeding in respect to the further bandaging, as has already been suggested for shattered fractures of the bones." In spite of all, Boy would not admit that he had been mistaken and advised amputation in general for gunshot wounds of the joints with shattering of the bones, especially in case of the large joints. "Experience brings discredit upon all contradiction, the seeming improvement only deceives." If amputation were not allowed then the ligaments could be boldly severed, for why spare them? There was no danger in cutting through them; if the wound healed ankylosis resulted so that the ligaments of the joints were of no use.

In case of shot through the *shoulder-joint*, at first every hope for the preservation of the limb was abandoned (J. L. Petit, le Dran, Heister and Z. Platner), because the head of the joint was always thought to be fractured and the shock was said to be imparted to the entire bone. But E. Platner thought this concussion transmitted from the head of the joint not readily possible, "since in youth the head is separated from the shaft by a visible line of demarkation, and there is no fixed and immediate communication between the two. For although in maturity the two seem to be completely grown together, yet the lines of demarkation so apparent at an earlier age have not flowed together to such an extent that the head and shaft could be said to enter into a complete, unbroken union. Experience also teaches that the shaft is not necessarily splintered when the head is shattered." That was the same idea as Stromeyer's in regard to splintering above the edge of the epiphysis. Bilguer, Ravaton and Schmucker reported cures by the conservative method; in that way large incisions were not necessary as soon as one felt certain of suppuration in the joint. Gunshot injuries to the *elbow-joint* were regarded as more dangerous than those of the shoulder-joint, on account of the number of ligaments and nerves and of the many bony projections, insomuch that amputation was looked upon as the rule. But in this case too conservative cures were more often reported (certainly by Paré). Ravaton thought that only those injuries offered a prospect of cure, which did not affect the entire joint, but nevertheless he would only amputate when gangrene and exhaustion threatened. Shots through the *wrist* were also cured but a stiff joint remained.

In *gunshot wounds of the knee-joint* with a simple capsular injury it was thought that amputation could be avoided (Ravaton); in those with shattered bones, lacerated ligaments or injury to the popliten the rule prevailed to amputate immediately, the earlier the more successful (Schmucker and Boy).

The following, among others, were experiments in conservative treatment:

Ravaton (Obs. 90). The ball opened the capsule near the patella without injuring the bone. After three months, caries of the patella, amputation, death.

J. Hunter (Ausgabe von Palmer-Langenbeck, S. 890). The ball entered at the outer edge of the patella, went behind this through the joint and passed out through the cond. int. fem. Four days without treatment then superficial bandaging; cure.

Theden (Neue Bemerk. I Th. 11 Absch.). Shot through both condyles of the femur; extraction of many splinters. In the ninth week a fragment with a distinctly perceptible point penetrated into the knee-joint, and it was held down by graduated compresses and a specially constructed press. Without inflammation, suppuration or exfoliation ensuing, healing followed with a somewhat stiff joint.

Ehrlich (Chir. Beob. II Theil, S. 115). The ball entered at the condyl. ext. fem., passed through the knee-joint and out through the condyl. int. tibiæ. French surgeons urgently recommended amputation on the battle-field. The patient consented; but as the knife was so dull that it was more like a saw, he rebelled. Allowed to lie helpless, on the following day he was brought into the hospital. The patient with a four-inch circular incision which reached to the muscles, now very earnestly desired amputation. However Ehrlich could not decide upon that because he had already successfully cured several similar gunshot wounds of the joints; bandaged with plaster. After six weeks the swelling, suppuration and synovial discharge had diminished considerably and in eleven weeks the wound was healed. The patient was discharged with a stiff joint in three months.

Boy (l. c.). The ball injured the knee-joint, the outer edge of the patella and the condyle of the tibia. For several days the patient was so well that Boy did not think of amputation at all. Then swelling, excessive suppuration in the muscles of the thigh and caries. Repeated incisions, injections and careful diet brought about a cure in five and one-half months.

Boy regarded as an exception his conservatively cured case of gunshot injury to the knee-joint, and considered amputation as the rule. He did not know that during the campaign gunshot wounds in the knee were survived without amputation, but he had observed many die when the operation had not been performed. Of course the amputation of the thigh was a dangerous operation, but patients endured it rather than that injury. "It can well be that a few amputations were made when the patient would have recovered without one, but many will be saved by amputations who would die without them. . . What is very important in gunshot injuries to the knee, the amputation must not be postponed because it may soon become impossible to perform it successfully. The excessive suppuration which often extends even to the anus produces caries of the hip-joint and exposes the patient to the greatest danger."

If a *cannon ball had torn off one of the extremities* the stump was amputated in order to make a simple and clean wound and to prevent inflammation (Mar-

tinière). But similar injuries soon led to other principles. When an arm and shoulder-blade were torn off by a mill-wheel there followed no hemorrhage; a ligature was unnecessary and healing ensued (Cheselden). Ravaton saw an upper arm taken off close to the shoulder by a cannon ball; he bound up the artery, left the head of the humerus in place and thus avoided exarticulation; a cure resulted after seven months. Michaelis and Hunczovsky published two quite similar cases with ligature of the brachialis, the omission of amputation and ultimate healing. There were then submitted cures with and without amputation; one must take his choice. Bilguer was throughout opposed to a new amputation of the foot, lower leg, hand and forearm; he separated the ruptured soft parts still remaining, sawed off protruding ends of bones and removed all loose splinters. At the upper arm he made a ligature of the main vessels and in this way cured several cases; but in case of thighs shot off he saw, as a rule, death result so quickly from loss of blood that there was no longer any question of assistance. Schmucker also discarded amputation, and even considered it superfluous to saw off the ends of the bones, and he never observed severe hemorrhage follow because the arteries contracted quickly. When he found both upper arms taken off, the brachialis in only one needed to be bound; and even in case of the thigh the ligature of the femoralis was unnecessary. B. Bell and Larrey favored amputation, and also Richter, who however seemed to vacillate.

Whether one should amputate on the battle-field or later was a much discussed question. The older surgeons, Wiseman, Sharp and le Dran, had favored primary amputation. Faure in his prize work, declared this very dangerous on account of the increased sensibility and the anxiety of the patient, and would amputate only after three weeks or more, when the patients had recovered themselves. Boucher immediately opposed this view with some successful amputations made upon the battle-field (1756). Likewise thought B. Bell, Schmucker and the Siebolds, father and son, who would amputate immediately and even before transportation. These German surgeons frequently observed amputation of the thigh which were made on the first day heal, while if some days passed, and the wounded had been transported and inflammation, swelling and fever had arisen, the outcome was often fatal. Entirely opposed to this was the opinion of J. Hunter who, somewhat faint-hearted in his operative counsel, considered amputation upon the battle-field as the greatest mistake.

If hemorrhage did not indicate it at once he was willing always to postpone it until the inflammation was over, since the loss of a large limb, in perfect health and strength, was seldom endured. And if one should, with right, allege for the primary amputation that transportation is made more easily possible, yet experience opposes to this advantage that it costs more human lives than the secondary operation. These principles found a bitter opponent in Boy. He amputated as soon as the first shock was over, supported by the experience that in the field hospitals of the first class the operations always had the best results. Out of fifty-six amputations on the battle-field and upon soldiers treated in the hospital of Landau, fifty recovered. "If also many died whose limbs had been amputated on the battle-field, yet this does not throw aside the general experience. . . . Naturally, all those with fresh amputations did not recover. There are patients who will die whatever we may do; again there are others who will come through successfully, however unwisely one may proceed. Any unnecessary postponement of amputation increases the danger. If inflammatory conditions once appear, the patient is killed by increased irritation; if suppuration is present he readily dies of exhaustion. If one must postpone the operation, he should watch the periods of inflammation and amputate at the time of the suppurative period." It is seen also that our intermediary period was also known in the last century and amputation was foregone during that time. Among the French military physicians, primary amputation now soon received general recognition, although one finds the name of Boy nowhere cited. The chief physician of the French army, Larrey, exercised the greatest influence with his rough notes from the battles of Napoleon I. (Mém. sur les amput. des membres à la suite des coups de feu, 1797). Percy and Sabatier joined themselves to him. The latter wrote to Larrey: "Citoyen! je suis pénétré depuis longtemps de la vérité que vous y expremez, qu'il est nécessaire d'amputer sur le champ dans le plus grand nombre des cas, qui exigent cette opération." Larrey published a number of successful primary amputations and announced the following indications for it: 1, limbs carried off; 2, fractures with contusion of the soft parts; 3, laceration of the soft parts and main vessels; 4, fractures with laceration of the muscles and large nerves; 5, extensive exposures of the bone; 6, laceration of the bones, muscles and vessels without wider separation of the skin; 7, fractures of the joints of the foot and forearm, with laceration of the ligaments, and lodgment of a ball in the end or cavity of a joint, if it could not be readily extracted. Larrey considered a delay was indicated if gangrene was not yet limited, or if inflammation, fever and delirium appeared during the first twenty-four hours; then only could the secondary amputation come into question. He recommended conservative treatment in all simple fractures and in such as affected the joints.

(*To be concluded next week.*)

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Proceedings of the Ninth Annual Meeting.

(*Concluded from last week.*)

Dr. F. X. DERCUM of Philadelphia read a paper on

THE PATHOLOGY OF FUNCTIONAL DISEASES AS A GUIDE TO TREATMENT.

He described the nerve cells and related observations on cell activity in lower forms of life. These show movement of nerve cells and that activity causes the cells to shrink. Alcoholism causes serious nutritional changes in cells, especially that the fine prolongations were corroded, swollen and destroyed. There may be changes in cells, destruction of same and changes in the prolongations. Symptoms: Fatigue, irritability in keeping with pathology, loss of cell substance; may be due to poisons in blood. He related experiments with frogs. This is neurasthenia simplex, not that form found with organic diseases in pelvis, which is neurasthenia symptomatica. The indications are: 1, rest and food; 2, removal of waste products. In hysteria, hypnotism should not be applied; may substitute worse condition; in insanity, rest, food, elimination of toxic agents. Autointoxication may come from: 1, excess of normal constituents; 2, due to diseased organs; 3, poisons from without.

Dr. J. B. COWAN emphasized the importance of the poisons in tissues.

Dr. R. M. CUNNINGHAM said that the experiments related wiped out the functional diseases. The pathology of the writer explains the symptoms and indicates the treatment.

Dr. L. S. McMURTRY said that nervous symptoms were often thought to be due to gross lesions. When these were removed the symptoms were not relieved. By elimination, rest and feeding, by improving the nervous system, they may improve.

Dr. G. C. SAVAGE related cases with pigeons which were killed in different stages of exhaustion, which showed that exhaustion reduced the size of the cell. We need not dispense with functional diseases. The changes are physiologic rather than pathologic.

In closing, Dr. DERCUM said that the essential in simple neurasthenia was fatigue, and might complicate symptomatic neurasthenia. To Hodge is due the credit of first making observations of cell changes.

Dr. F. B. SLOAN of Cowan, Tenn., illustrated "The Application of the Plaster Jacket and Dressings" on a subject on a frame by which the patient is to be suspended in a hammock while the jacket was applied. The patient was placed in hammock, which was supported by a roller around the body and around the top of the frame, and plaster jacket over hammock.

Dr. R. M. CUNNINGHAM had a case die just after suspension in the Sayre apparatus, in which there is severe shock after extension in Pott's disease.

Dr. SLOAN closed the discussion by relating three cases treated with the apparatus, which is the invention of Dr. T. W. Sloan of Seattle, Washington.

Dr. JOHN A. LARRABEE of Louisville, Ky., read a paper on

SOME POINTS IN THE TREATMENT OF TYPHOID FEVER

In which he claimed that as we are aborting other microbic diseases it is not unreasonable to attempt to abort typhoid. He thought that the products of the typhoid fever bacillus were far less injurious than the heterogenous microbes and ptomains formed in the intestinal tract by reason of improper diet and from poisonous gases, the product of putrefactive changes, all of which are in our power to prevent. Intestinal antisepsis is the *sine qua non* of treatment. Avoid narcotics lest the already cloudy typhoid cerebrum should forget to preside over the function of life; may occasionally be used with restlessness, factition and a dilated pupil, especially accompanying hemorrhages. Physical examination should be made every visit. Tympany should not be allowed to elevate above the spinous process. For this use:

R	Ol. terebinth	dr. j
	Rochelle salts	oz. j
	Glycerin	oz. iv

M. Inject one-half in pint of water, and remainder if not relieved in two hours.

He endorsed the principle on which Dr. Woodbridge bases his treatment, intestinal antisepsis. The essence of cinnamon is more potent to destroy micro organisms than carbolic acid. For thirty years he has never been without a pill made after the formula of Dr. Fisher, an army surgeon, consisting of crude mercury with aromatic oils and terebenthinates, cubebs, copaiba, peppermint, aloes and colocynth. When purgation ensued he alternated with 5 or 10 grains "Tully's powder." The annoyance of the fifteen minute dosage advocated by Woodbridge, he thought deleterious. He advocated specific treatment, *i. e.*, all intestinal antiseptics, which are innocuous, and had used guiacol and guiaquin, especially where there is any probability of malarial complication, etc.

Hyperpyrexia is important but must be overcome by means not prejudicial to the patient. When the temperature persists at 104 degrees, use thirty drops externally to a small area of the abdomen. Never use antipyrin or acetanilid. If pulse and temperature rate are greatly disturbed, use small doses of strychnia.

It is a question whether the enforced feeding of the present day is not as deleterious as the venesection, almost to exsanguination, of former days. Complete anorexia helps to make early diagnosis. Bouillon, Axtell's capsules, buttermilk, Mellin's food with milk and plenty of sterilized water are quite sufficient to choose from, and never more than a gill at a time. He protested against the use of alcoholic stimulants. He had never seen any benefit from their use which could not have been obtained from tea or coffee. Digitalis has no place in typhoid. Strychnia is the one heart stimulant to be used. He should not wait for urgent and alarming symptoms before giving small doses. Whenever the pulse and temperature are disturbed in the relation of 10 to 1, strychnia should be used. Heat is a powerful stimulant to the heart and a hot water bag or Geyser hot appliance should be at hand for emergencies. Hemorrhage is from super-alkalinity and defibrination of the blood by the ptomains formed in the intestinal tract. In some, hemorrhagic diathesis; increased coagulability in some. This condition is favored by mineral acids and especially a diet of buttermilk, lactic acid, better safeguards against hemorrhage than hemostatics. Ergot controls bleeding only when unstriped muscular fibers can compress the vessels; in other forms of hemorrhage a therapeutic error. Antiseptic treatment is of value not from destruction of bacilli, but from prevention of formation of ptomains and poisonous gases, which are main factors in keeping up disease. Typhoid is a swallowed poison, hence the importance of pure water. Nothing equals chlorinated lime for disinfecting the dejecta. It is as criminal to deposit the non-disinfected stools in a vault or cesspool as to put Paris green in a neighbor's well.

Dr. J. W. DUNCAN said that the author was in accord with his views. For some years he has believed that typhoid fever could be aborted and had been using the best antiseptics obtainable. About two years ago he got Dr. Woodbridge's formula from Parke, Davis & Co., and had gotten good results in every case: had not lost a case since. He agrees that the patient should not drink well water; had not seen a case in last five years who did not drink well water. He also believes that the disease may be caused by using milk from cows that are allowed to drink impure water. He sustains patients with strychnia, careful feeding with liquids only.

Dr. G. W. DRAKE said that in Chattanooga there was very little typhoid since improved sanitary condition, sewers and water-supply. Would treat with baths, not as Brand, but at such a temperature as would not shock the patient. This was enjoyed by the patient. Accomplishes good not by reduction of temperature but by application of water.

Dr. J. Q. SUTTON stated that he had used Woodbridge's treatment three years, but that when he began to purge he dosed less often. In Tracy City those who used cistern water did not have disease, but those who had the disease used well-water.

Dr. J. A. WITHERSPOON said that the poison is not in the bowels but formed in the lymphoid tissue, hence intestinal antisepsis is not rational. The disease frequently reported as typhoid was not typhoid but a hybrid fever due to intestinal fermentation.

Dr. J. B. COWAN had not seen a case of typhoid for twenty years.

Dr. JAMES E. REEVES of Chattanooga had examined 300 cases and did not find the Eberth bacillus in one. The fever we have may be due to intestinal fermentation, and here intestinal antisepsis may be useful. Hemorrhage may be due to hypermedication.

Dr. ANDREW BOYD said that Dr. Cowan had discussed this disease at every meeting for ten years and had always advocated whisky, and he wondered that he had not mentioned it. Dr. COWAN replied that he was coming to that when his time was out. He gave whisky in every case of fever.

Dr. WILLIAM R. BLUE of Louisville, Ky., read a paper on "The Cystoscope in the Diagnosis of Bladder and Kidney Disease," with presentation of the Leiter-Brenner cystoscope, which he preferred. He related cases in which it had been used for foreign bodies, stone, tuberculosis, etc. The cystoscope is indicated in obscure urinary troubles and to aid in catheterizing the ureters.

Dr. W. FRANK GLENN said that the value of a cystoscope and endoscope could be appreciated only by those who used them. Stone can be diagnosed where not found with sound. He related a case where stone had been found postmortem which could not be found with a sound. In all obscure cases the cystoscope should be used. It is extremely difficult to catheterize the male ureter.

Dr. BLUE said that many condemned the instrument from want of skill in using it. This requires plenty of patience, skill and glycerin.

Dr. J. P. STEWART read a paper entitled "A Bouquet of Remedial Agencies," which was a discourse on the moral management of patients. He related a number of cases relieved of serious nervous troubles by giving way to their whims and thus securing their confidence; dealing on the influence of the mind over the body and the influence of one mind over another.

Dr. W. FRANK GLENN said that the subject of the influence of the mind over the body and over another mind was full of interest. The first duty of the physician was to get the confidence of the patient and then his suggestions would pretty surely be realized by the patient. Nineteen hundred years ago Jesus had taught this law every day, that the cure depended on the confidence of the patient. "Thy faith hath made thee whole."

Dr. G. W. DRAKE believed that every disease had a material basis. There are no imaginary diseases. Mind may act on the cell but has not complete power. In these cases give medicine and use suggestion.

Dr. E. B. SANGREE said that the paper was especially inter-

esting, as it dealt with a subject out of the general run. Since we are as ignorant of the ultimate constitution of matter as we are of mind it is well to be cautious in the use of the word. We know there are trophic nerves, and if nervous influence can affect cell metabolism it follows that anything that can stimulate nervous impulse can affect cell metabolism favorably. There is consequently no inherent reason why material effects can not be produced by mental action.

Dr. J. P. STEWART, in closing, mentioned a hystero-epilepsy of ten years' standing, where the convulsions were stopped in three minutes when otherwise they would last thirty-six hours. He suggests no return for a week; later, for a month. Has had no convulsion for five years.

Dr. LOUIS FRANK of Louisville, Ky., read a paper on "Hysterectomy; Is it Justifiable in Septic Diseases of the Appendages?" He believes vaginal hysterectomy a fad. The reason assigned is that the uterus after oöphorectomy is a useless organ, when the fact is that it is necessary to complete the pelvic floor. It is not more liable to gonorrhea, tuberculosis and cancer than before. He regards the operation as more dangerous than removal. There is less shock in abdominal operation without removal of uterus; position of bladder not disturbed. Total extirpation may not be necessary; less danger of tearing. Does not oppose vaginal hysterectomy for cancer but only in rare cases.

Dr. L. S. MCMURTRY said that a limited number might be cured by tapping. The French are experts in vaginal hysterectomy, but are not equal to the Americans and Euglish in abdominal section. The best surgery is that which cures the patient thoroughly and completely with the least mortality and preservation of most of the organs in their integrity; can not make accurate diagnosis, especially as to bowel involvement if uterus is sacrificed before complete diagnosis. Often suppurating tubes, etc., are not removed. Convalescence is retarded by slough from clamp; not a completed operation. In abdominal section we can drain *per vaginam* or above by suction. The personal equation of the surgeon cuts an important figure, but generally the abdominal route is best. Cases can be cured both ways.

Dr. W. D. HAGGARD, JR., was an American convert to the French school. He would not remove a healthy uterus. Where both tubes are infected the mucous membrane of the uterus is infected, then the uterus should be removed or it may be reinfected, necessitating subsequent operation. The reason for vaginal hysterectomy is on account of less mortality. The advantage is that we can break up adhesions and abscesses by fingers, per Douglas cul-de-sac, and determine extent of operation necessary.

Dr. R. M. CUNNINGHAM said that a thorough curetting of the uterus occasionally cured pus tubes. Removal of pus tubes per abdominal section and thorough curettage of uterus meets the indications.

Dr. B. SHERWOOD DUNN cited statistics showing that the mortality by the vagina was better. Since coming to America he had changed his mind. Vaginal hysterectomy had been pushed to extremes in Paris and there will be a reaction. He will operate by abdominal route in many of his cases hereafter. Vaginal hysterectomy will not be superceded in peri-uterine abscess and cancer. In bilateral pus tubes he would perform abdominal section. He had never had secondary infection in 500 cases.

Dr. G. W. DRAKE of Chattanooga, Tenn., read a paper on "Abnormal Metabolism," insisting on importance of proper nutrition. Disease is due to change which may not be seen even with the microscope. The animal extracts will largely supersede other remedies in future.

Dr. L. B. GRADDY of Nashville, Tenn., presented a case where there had been "Infectious Disease of the Brain from Acute Suppuration of the Middle Ear." Infectious disease of the brain, from chronic suppuration of middle ear is quite common; may have pachymeningitis, leptomeningitis or abscess of brain. In this case the inflammation was from the use of the douche. The membrana tympani was punctured but abscess of mastoid resulted. Nearly the whole of the mastoid was removed, followed by abscess of the posterior part of the middle lobe. Operation was followed by recovery.

Dr. N. C. STEELE emphasized the danger of using the nasal douche. Mastoid operations are successful as a rule. He insisted on the importance of opening mastoid when pain in this region was not relieved by leech and hot applications.

Dr. FRANK TRESTER SMITH called attention to the lesson of the importance of middle ear disease as a causative factor in producing brain lesions, especially abscess. As a rule abscess of the brain is caused by suppuration of the middle ear and hence it is important that the latter be cured.

Dr. C. M. DRAKE of Atlanta, Ga., read a paper on "Formaldehyde as a Disinfectant." He endorsed the use of this agent, which has the support of the Marine-Hospital Service. He described the lamp devised by Kinyoun, which is simple, cheap and effective. It is the most feasible and best germicide for disinfection. Trunks are to be filled with the fumes and placed in a room filled with the gas. The gas is very irritating to the eye, nose and throat.

Dr. J. A. GOGGANS related a case of ptomain poisoning (probably), due to eating oysters, with symptoms resembling atropin poisoning.

Dr. G. W. DRAKE said that urticaria was often the result of diet and medicine. He knew of cases due to eating strawberries.

Dr. GOGGANS said that it was not a case of urticaria, there was no itching.

Dr. DRAKE said the cause was similar and the treatment should be the same.

Dr. J. W. HOOPER said it was difficult to decide whether it was due to poison or reflex trouble. Patient gives history of similar trouble whenever he eats cheese. He thought it one of tyrotoxicon poisoning.

Dr. J. W. HOOPER of New Site, Ala., read a paper on "The Practical Application of the Microscope to Every-day Practice," relating cases where renal colic was diagnosed from appendicitis by examining the urine. The microscope should not be relied on exclusively. In an epidemic of diphtheria he found the streptococcus and gave an unfavorable prognosis. Many of the cases died.

Dr. R. M. CUNNINGHAM thought that the general practitioner should be able to count the blood corpuscles and estimate the amount of the hemoglobin. The microscope in the early diagnosis of tuberculosis is of questionable importance. The average practitioner will not give the time to recognize what he knows.

Dr. RICHARD DOUGLAS of Nashville, Tenn., related a case of a woman at full term with placenta previa and contracted pelvis two and three-fourths inches, hemorrhage increasing, and asked what the members thought the proper procedure.

Dr. J. B. COWAN suggested dilatation and delivery.

Dr. G. W. DRAKE co-incided; could not see that anything could be gained by waiting; craniotomy if necessary.

Dr. J. W. DUNCAN would advise, if pelvis large enough to deliver head, immediate dilatation, version and delivery as rapidly as possible. To attempt to apply forceps above the brim of the pelvis might cause delay, which would result in the death of the mother as well as the child. If the deformity precludes the possibility of natural delivery he agreed that Cæsarean section is the thing to do at once.

Dr. J. A. WITHERSPOON said that it was impossible to deliver head at two and one-half or three-fourths inches, and the case should be watched and Cæsarean section performed.

Dr. C. M. DRAKE recommended symphysiotomy and immediate delivery.

Dr. DOUGLAS thought the indications clear. In placenta previa deliver immediately, always. The high forceps operation is difficult and dangerous and his plan of procedure will be Cæsarean section.

The meeting was one of the most successful ones in the history of the society, scientifically and socially. The evening of the first day was spent at the Centennial Exposition and also the afternoon of the second day, when the physicians of Nashville tendered the visitors a luncheon at the Lion Roof Garden. About 200 members and their ladies were present. The X rays were exhibited at the close of the night session of the second day showing bones, foreign bodies, deformities, etc.

The following resolution was passed:

Resolved, That the recent outburst of yellow fever in the South and numerous conflicting State and municipal quarantine regulations, emphasize the great need of national quarantine laws which are uniform and protective; and

Resolved, That the Tri-State Medical Society in convention assembled urge upon members of Congress the need of laws governing quarantine in the development of cholera, fever, smallpox and plague.

The Society will meet in Birmingham, Ala., next year. The date will be selected by the Committee of Arrangements.

The following officers were elected: President, J. A. Goggans, Alexander City, Ala.; vice-presidents, Andrew Boyd, Scottsboro, Ala., G. W. Drake, Nashville, Ala., and C. M. Drake, Atlanta, Ga.; secretary, Frank Trester Smith, Chattanooga, Tenn.; treasurer, Geo. R. West, Chattanooga, Tenn.; chairman Committee of Arrangements, George S. Brown, Birmingham, Ala.

Let us have a Department of Public Health!

SELECTIONS.

The Pest-Stratum of the Sites of Cities.—Dr. Robert Barnes, who as long ago as 1855 was a health official for a part of London, in *Scalpel*, treats of the dangerous properties of the superficial soil of cities, the careful future investigation of which will solve some of the mysteries of high civic mortalities. We agree with him that we do well to labor with the outstanding problems of water-supply, but as they will presently be mastered, the problems of the soil will become urgent and, as they too are solved, life-saving will begin in good earnest. Dr. Barnes says: "One of the most striking examples of the influence of soil, and soil governs water and air, is the generation of ague. Ague was at one time endemic in Shoreditch, but it has vanished. So we may reason that unhealthy sites may be made healthy by care; but it is not less true that sites, naturally the most salubrious, may by neglect become pestiferous and deadly. I showed that we were chiefly concerned with the soil to the depth of thirty feet. Proceeding from the surface we had a bed of variable thickness, commonly called 'made earth.' It is chiefly an artificial stratum. The proportions of 'virgin soil' to that of common earth had been reduced to a very insignificant amount. The great bulk was made up of refuse of every kind. . . This upper stratum so constituted had been further polluted, and its noxious qualities intensified, by innumerable perforations for cesspools, and constant saturation from defective sewers and drains, the poisonous emanations from gas-pipes, and every conceivable abomination resulting from the offscourings of a population of 25,000. This layer of foul stuff, or pest-stratum, as it may appropriately be called, varied in thickness from one or two to sixteen feet or more. This description of the pest-stratum is a very important contribution to geology. This last stratum, the work of man, has to be cleared away. This done, geology reverts to its primeval natural purity. Another observation may be pardoned. If this pest-stratum, laden as it is with putrescent matter, could be kept dry, it would be comparatively harmless. Moisture is a necessary element for the evolution of its pestiferous properties. Hence good surface drainage is not less necessary than deep drainage. And we may see a happy illustration of this in the present condition of the city and the more perfect districts of London. The paving and other means for securing quick surface drainage not only lessen the emanation of foul air from the surface, and from the soil beneath, but they also promote the dryness of the air. The relative humidity of the air in London is often less than in the country. This is especially marked at night. There is little or no dew. The dry surface gives off no moisture for precipitation. And so we get in London the luxury of clear, dry, fresh air at night to a degree hardly known in many parts of the country. Doctors who have experience of night work have found this out. A practical lesson from this is: That windows may often be opened at night in London with benefit, when in the country, where grass is near, the practice is fraught with danger. I have had many proofs of this in country consultations. To secure this surface drainage and cleanliness to the greatest extent it is essential that the material for pavements be solid and impermeable to moisture. Flagstones and asphalt fulfil these conditions. Wood pavement, pleasant as it is in some respects, does not. It absorbs damp filth and gives off foul air and dust. The population actually living on the bosom of the Thames, whose every breath is a distillation from its water, is not especially liable to fever; not so much so, indeed, as the population whose dwellings skirt the banks. And this littoral population, it must be borne in mind, is exposed not only to the malaria arising from the banks, but also to that same class of pernicious influences attached to bad sites and badly constructed houses, which are found alone sufficient to generate fever. Few of the seamen who filled the medical deck of the *Dreadnought* contracted their illness on the river under circumstances which can be connected with the state of the waters; and of these few it will be found that the illness of most could be traced to cold, wet, exhaustion, bad food, drinking bad water, and overcrowding in the close ill-ventilated forecastles of unhealthy ships. Most erroneous assumptions still continue to guide the exertions of those who are most earnest in favor of the present scheme of what is called the dispollution of the Thames. I had studied the Gulf Stream as it flows in a distinct current across the Atlantic; I had seen the Plata propelling its stream of fresh water unmingled many miles into the ocean; I had traced the confluence of the Rhine and the Main, whose streams are colored, one red, the other green, running on side by side, two rivers in one bed, and I concluded that the great sewage stream would hold its course, a concentration of pollution. Sir John Simon, in his admirable reports, expressed conclusions in harmony with the above and with the evidence adduced in my observations on the Thames, read before the British Association at Dublin. In this memoir, based upon examinations of the Thames water, of which samples were taken weekly during a whole year, at high and low water, from alongside the *Dreadnought*, I was assisted in the chemic side by Odling, and Hassall in the microscopic side. During the construction of the eastern-most main sewer I had an opportunity, I will not say of enjoying, but of experiencing a festivity under conditions which few excepting professional sewermen, can appreciate. I accompanied a committee of my Vestry and the surveyor in an official survey of the sewer. We descended into this subterranean canal by a hole near St. Luke's Asylum, walked along as best we could, breathing the balmy sewerage air, to a point at the East end of London, where we emerged. It is needless to say that as a safeguard against accidents, we took with us a supply of alcohol; and, to make our visit and report more picturesque, we stopped on our way and had lunch with what appetite we could muster. This experience taught us, I hope, to look with indulgence upon the occasional breach of the law of temperance by professional sewermen. On coming into the free air above I felt as I fancy Dante felt on passing from the Inferno into Paradise. No one was the worse for the adventure."

Ambulant Treatment of Fractures of the Leg.—Dr. C. Walther, in the *Revue d'Orthopédie*, has made a critical study of the methods which have been tried by German surgeons to secure the use of the legs in standing and walking during the process of healing in fracture. In the first place, he takes exception to the term "ambulant treatment," and suggests "treatment by action" as contrasted with "treatment by rest." The question is, is it possible to enable one to walk usefully who has an united fracture of the leg or thigh? (By "usefully" meaning the resumption of work, sitting or standing.) The apparatus must be so arranged as to take from the lower segment, below the solution of continuity, the pressure from the weight of the body. The apparatus used by Korsch and Bardeleben was first applied to fractures of the malleoli and leg, and afterward to osteotomies and resections. The principle on which they were employed was that of continuous extension, first made actively while putting on the plaster bandage, second passively continued by the apparatus. The writer, in the *Revue de Chirurgie*, 1895, had shown that continuous extension could not be exercised except by elastic bodies, or by the action of a weight; by any other means it is intermittent or illusory. Burns' orthopedic apparatus is the one most widely known; it consists of a plaster bandage to which are attached two hollow tubes fastened above at the root of the thigh to a padded metallic ring, taking its point of support at the ischium. Below, a stirrup fixed two or three centimeters below the plaster sur-

face of the foot, maintains the foot above the ground while standing. Bardeleben enumerates the following claims for the new treatment: It would prevent the formation of scars, antagonize atrophy of the muscles, hasten formation of the definitive callus, keep the organism in good physiologic condition, and give great help to the aged, to alcoholics and to all with debilitated constitution.

1. All kinds of apparatus, however delicately applied, can produce scars by pressure on the point of support, or by some disturbance of nutrition from other cause. If this is so when the patient keeps his bed, the limb is immobile and nutrition is least disturbed, how impossible to avoid it when the limb is down and circulation and innervation are interfered with by pressure much more considerable.

2. The pressure inward on the tissues by the padded ring and outward by the consequent edema, interfering with circulation, will more than neutralize the good effects of muscular action; besides, action itself is refused if it can not take place without suffering.

3. The definitive callus is formed only after five or six months when the apparatus has already been taken away. Whatever increased nutritive gain to the fragments there might be in the increased activity, would be counterbalanced by the more frequent displacement of the contiguous ends of the fragments, this being known to be the most fruitful source of fibrocartilaginous union, thus postponing indefinitely the definitive callus.

4. The restraints within doors are about the same, because the treatment does not admit of resuming the usual employment.

5. Alcoholics suffer from delirium tremens too soon after the accident to be benefited by the apparatus, which is not applied till between the eighth and fifteenth days.

The points of support on the thigh must be the skin, the muscles and the bones. The skin in its intolerance to continued pressure, in its elasticity and in its mobility over the subjacent parts coated with the secretion of its numberless glands, would never be anything but an uncertain and intolerant point of support. The appliances to its wrinkling surface would cause suffering, phlyctenulæ, excoriations and scars. In the leg the gastrocnemius is the only support for an apparatus applied to the muscular tissue. If it is utilized its skin covering must participate, the muscle will atrophy and, at best, the force will be applied at the point of insertion of the tendo Achillis in the calcaneum so as to exert pressure upward on the lower segment of the fracture, the very thing sought to be avoided. As to the bony supports: The first indication is to maintain the foot above the ground by means of protectors embodied in the plaster bandage. The second is to find, above the solution of continuity, points of solid support on the bones of the leg or pelvis. There are only the tuberosities of the tibia in the leg. The condyles of the femur project too far for the tibial region; and it is out of the question to employ the patella because of its mobility. Besides, the skin would be intolerant of an apparatus applied over such sharp angles as those of the tuberosities of the tibia. The ischia offer better support when the fracture is above the knee, being solid, protected by a thick pad of cellulo-fibrous tissue imbedded in fat, which lessens shock and pain from pressure. But, with all this favorable, the most delicate skill in application would be needed as well as the most expensive materials, to utilize this point of support successfully; and there would still remain the danger of ankylosis of three large joints, besides the risk to be taken in interference with circulation, to edema, scars, etc.

The author believes that few, except transverse fractures of the leg, could be benefited by the "ambulant treatment." In the aged, in children, in most women and in fat, over-muscular or too feeble men, it would be contraindicated, or impossible. He sees in this method no real advantages as to definite results; he thinks it impracticable, for to apply suitable apparatus, exceptional skill would be needed to secure proper traction on the parts and permit use of the limb in walking. Besides, the cost would bar it from those most to be benefited by it. His conclusion is: To hope to enable those with fractured femur or tibia to walk usefully before consolidation, is at present a beautiful dream whose future, however desirable, can not yet be foreseen.—*Clinical Recorder.*

Imperforate Anus Treated by Kraske's Operation; Recovery.—Dr. Matas, in the *New Orleans Medical and Surgical Journal*, records a successful operation for the relief of congenitally imperforate rectum in a well grown male infant. The operation was done forty hours after birth, without anesthesia. There was no loss of blood, no blood vessels having been encountered. The infant went to sleep soon after the conclusion of the operation. A cough, the prodrome of pertussis, which was epidemic in the locality at the time, was noticed on the day following the operation. This complication seriously threatened the final success of the operation. The serious nature of the case was fully explained to the parents and an operation urged that would permit the establishment of an outlet through the normal anus or perineum, or of an artificial anus elsewhere, if the exploration of the pelvis revealed such a condition that made the restoration of the intestinal canal at the anal region an impossibility. The parents at once consented. The general condition of the baby was excellent. The abdomen, though slightly full and tense, did not give evidence of intestinal paresis. The stomach retained a few teaspoonfuls of sweetened water without vomiting. The frequent paroxysms of violent cough unquestionably precipitated a complication which would at least not have presented itself so soon after the operation. In consequence of the large pelvic outlet in the sacro-coccygeal region and the laxity of the anal orifice from weak sphincter control, the rectum began to protrude, and not many days elapsed before three inches of prolapsed rectum remained constantly extruded from the anus. All attempts to control the escape of the bowel failed. The constant protrusion of the rectal mucosa caused irritation and tenesmus, which distressed the child exceedingly and prevented rest. None of the local applications had the least influence in preventing the recurrence of prolapse and it became necessary to operate. "Having no faith in the palliative operations in such a case, I decided to excise the prolapse. Therefore, twenty eight days after the first operation, I amputated three inches of protruding bowel. After finishing this operation, we found it necessary to circumcise the child on account of phimosis, which made urination painful. These operations were followed by no unpleasant consequences, and in ten days the child was entirely well, with the exception of an incipient inguinal hernia, which became less troublesome as the cough diminished. It is also worthy of note that, in addition to the anal defects, the phimosis and the disposition to hernia, the child was born a unilateral cryptorchid, one testicle having failed to reach the scrotum. After this event the child continued to grow and do well, though he has always been pale and not as vigorous as his other little brothers. About a year and a half after the operation, the baby was brought to the city and I had the opportunity of examining it. The child had normally three or four bowel movements a day. It was difficult to ascertain whether there is much bowel control, but the finger feels a certain amount of resistance and contraction when it is introduced a short distance beyond the anal margin. The baby appears to be disposed to frequent diarrheal and dysenteric attacks, which are probably due to digestive disturbances. When these occur, the anal region becomes irritated, and has to be most carefully washed to prevent eczema and excoriations. It is also noticed that under these circumstances there is no fecal control. There is also a tendency to recurrence of the prolap-

sus recti, though in a much less degree than when this condition first existed. The prolapse now appears to be due to the tenesmus of dysentery. It is probable that the operative treatment will be required if the prolapse continues to increase. If such is the case, I shall advocate a simple rectopexy or anchoring of the rectum by Verneuil's method. While the child has thus far survived, and is apparently in very fair condition, it is evident that it has had to travel over a very hard road, and that its future path is not likely to be strewn with roses. After a careful investigation of the literature of the subject, I find that this is the tenth in a list of twelve cases of ano-rectal imperforation in which relief has been attempted by Kraske's method or its modifications." The cases are reported by Vincent of Lyons, two cases, in 1887; Ceci of Genoa, 1890; Burrell, Boston, 1891; Chaput, Paris, 1892; Poisson, Nantes, 1892; Czerny, Heidelberg, 1893, two cases; Fochier, Lyons, 1894; the present case, New Orleans, 1894; Elliott, Boston, May, 1896; W. W. Keen, Philadelphia, December, 1896. Of the twelve cases reported only two succumbed to causes directly connected with the operative treatment, and in one of these death was caused by peritonitis due to the infection of the peritoneum with an exploring needle previous to the sacral operation (Czerny's second case). Eight out of the twelve cases died at variable periods, from a few days to two months after the operation, from diarrhea, marasmus, capillary bronchitis, and other conditions not directly connected with the operation. Four of the twelve cases had survived up to the time when they were reported; in Burrell's case, four and a half years after operation; in Poisson's, three years; in the writer's case, two years and nine months; in Elliott's case, six months after the operation.

Resume of John Howard's Sanitary Labors.—The editor of the *Scalpel* closes a long essay on the life and deeds of the great Howard with a digest of his sanitary efforts. He says: John Howard had no sort of sympathy with crime or criminals, but a sense of justice, a submission to duty, a moral and physical courage, an industry and perseverance, a truthfulness, simplicity and modesty, which never before met in the same man, and probably will never meet again. He was emphatically one of those Englishmen to whom, if I may use the grand patriotic language of Milton, "God, when he would work some great reformation, does as his manner is, first reveal himself."

Such a life if written would have to deal with the poor in prison and the sick in hospitals. It would be a tale of human suffering, but the moral would amply compensate for the painful details necessarily brought before the reader. It should be treated as Dr. Guy says, as a romance: a romance which shall to the end of time amuse and instruct, reprove and encourage, not those only who speak the language that Howard spoke, but those, too, all the world over, who are able to appreciate the magnitude of the evils that he attacked, and the greatness of the victory which he won.

Howard's labors were truly Herculean. We can hardly realize that it was in the physical power of one man to do so much work. In his mission of charity he traveled over 45,000 miles, and went through hardships and perils of the most trying kind. Fortunately, he was spared to write out the history of his travels. Howard's explorations differ from those of Livingstone, Speke or Burton. They were of a nature which would only attract a man animated by the highest and purest feelings of humanity. They would be repellant to an ordinary mind. To live in an atmosphere of crime and misery, to have to descend into the miserable cells and dungeons described by him in his "State of Prisons," to have to witness the revolting cruelty and the unkindness of man to man, were duties which few would be capable of undertaking. Howard suffered from the very sufferings he had to witness, and from his want of power of being able to redress them. He visited in Ireland fifty prisons and goals. Out of that number he found five clean and forty-five dirty. It will be noticed that the Scotch prisons were in an equally insanitary condition. Howard attempts to explain this. He says that the original cause of this seems to have been the following very severe maxim in the Scotch law: After a debtor is imprisoned he ought not to be indulged the benefit of the air, not even under a guard; for creditors have an interest that their debtors be kept under close confinement, that by the squalor carceris they may be brought to pay their debts. He visited in Scotland twelve prisons and gaols, and found none clean and twelve dirty. Howard has left us an almost equally unfavorable picture of the state of English prisons. He visited in England 253 prisons and gaols, and found ten clean and 243 dirty. He visited 108 prisons and gaols abroad and found the majority of them clean. I have laid it down as the experience of Howard that dirt and disease went together, so that the health of prisoners depended in a great measure upon cleanliness. We can form a very easy approximation of the value of Howard's sanitary reforms from one disease alone, gaol fever. It is a disease unknown at the present day in connection with prison life; it was but too well known in the days of Howard, not only in England but on the Continent. Taking Howard's figures we may agree with Dr. Guy that the disease haunted one-fourth at least of our gaols. On the hulks on the Thames, amongst the prisoners, the disease seems to have been most destructive. "From August, 1776, to March, 1778, 176 prisoners died out of 632. This is more than one in four." Taking this as an estimate we may make it the basis for the number of lives he has been the means of saving, not alone in England, but over the whole civilized world.

For the purpose of comparison it is unnecessary for me to state the number of prisoners who are confined in English and foreign prisons at the present moment or who have been confined during the past fifty years. As population has increased, and as crime unfortunately preserves an equal ratio of increase, we may assume that there are more prisoners now than there were in the days of Howard. The gaol fever is now extinct. It has been stamped out by man's agency and by attention to the elementary laws of health. If one in four died in the time of Howard of gaol fever, and none die at the present day, what a vast saving of life has been effected. Every life saved must be credited to the great prison reformer. If we only take the prison returns of fifty years the net gain in life would reach a goodly roll. By attention to hygiene, to construction and arrangement of prisons, our prisoners have been saved from the gaol and other fevers, and by the humane management of prisons now adopted, prisoners are not only saved from disease but preserved in a state of health.

PRACTICAL NOTES.

The Application of Collodion and Salves in Ophthalmology is much facilitated by using a glass stirrer with a rounded tip. The substances do not adhere to the glass, and it is easily sterilized, while the smooth, rounded surface can not injure the eye.

Strychnin in Chloroform Poisoning.—In a desperate case of voluntary poisoning with chloroform, after the failure of all other means, the patient was restored by injecting, several times, about three centigrams of strychnin, seconded by artificial respiration and electricity. No deleterious effects were noted.—*Semaine Méd.*, December 15.

Convenient Method of Preserving and Diluting Tuberculin.—To avoid wasting the expensive substance when small injections are required, Tuwim fills a Pravaz syringe with the original tuberculin and stands it upright in a glass with the hole in the needle stopped with a soft cork, all under the strictest aseptic

precautions and protected from the light. When needed, the tuberculin is squeezed out, one drop at a time, and the consistency is such that the quantity in each drop can be calculated with great accuracy.—*Deut. Med. Woch.*, December 2.

To Differentiate the Grippe in Deceptive Cases.—A drop of blood is drawn from the finger into a tube, which is closed with a little cotton and laid away for twenty-four hours. At the end of this time the blood has become converted into a culture of the diplo- and strepto-bacilli characteristic of the grippe, extremely motile and easily visible with an ordinary microscope, 600 to 700 diameters. If negative results are obtained in twenty-four hours repeat in forty-eight.—T. V. Coronado in *Revista de Méd. y Cir. de la Habana*, December 25.

Indigo-Carmin Test for Milk.—If a few drops of a solution of indigo-carmin are added to milk the tint produced by it vanishes as the action of the microbes in the milk decolorizes it. The length of time the milk has been standing can therefore be determined by the duration of the tint; the older the milk the briefer the period of coloration. In fresh milk it lasts about twelve hours at 15 degrees C.; five hours at 15 to 20 degrees and four hours at 20 degrees, while it vanishes almost instantaneously when there are several decigrams of lactic acid to the quart.—Vaudin in *Bull. de l'Acad. de Méd.* November 30.

Pyramidon.—The value of this new form of antipyrin (*vide* JOURNAL, Vol. 29, page 1318), is confirmed by the results announced from v. Limbeck's clinic where it has been tested in a hundred cases of various diseases. Its antipyretic effect in chronic tuberculosis was highly satisfactory in thirty-two cases out of forty, and it was so successful in nine cases of articular rheumatism that it is recommended as a substitute for salicylic acid whenever there is intolerance. The fever not only subsided but it seems to have a specific effect on the rheumatism, 1.5 gram in fractional doses during the day. Its analgesic effect was also striking in migraine, trigeminus neuralgia, and other nervous pains, for which it is especially recommended, The effect is slight in chronic rheumatism, negative in malaria and nervous tachycardia and there was intolerance in two tuberculous patients.—*Wien. klin. Woch.*, November 4.

Prolapsus of the Female Urethra.—This trouble is rare (100 to 120 cases on record). It sometimes occurs during a coughing paroxysm in pertussis. Various methods of treatment have been devised, but the use of the knife is frequently followed by stenosis, and by death in one case. Emmet's "buttonhole" is not advisable on account of the fistula left and the double operation. Kleinwächter's method of slitting the urethra and suturing the beginning of the prolapsus to the base, is only applicable to partial inversion, but Israel's method is effective, simple and permanent in its results, as Wohlgemuth has confirmed recently, describing his experience with it in the *Deutsche Med. Woch.* of November 4. The protruding mucous surface is cauterized in narcosis with the Paquelin in a radiating series of burnt strips lengthwise of the urethra, through the entire thickness of the mucosa. The cicatricial contraction that results puts an end to the prolapsus. Two applications were necessary.

Minor Points in Gynecologic Technique.—After vaginal hysterectomy Bélin applies tampons in three layers; aseptic, aniline dyed strings are fastened to each tampon, a different color for each layer, so that one layer can be removed and replaced at variable times without disturbing those that should remain undisturbed for longer periods. This trifling innovation, he states, has rendered him inestimable service during the last year. He also uses a cone-shaped cake of soap in making the toilet of the vagina, which does not slip out of the hand like the ordinary cake and get lost in the depths. Reverdin's further improvement consists of a tube passing through the cone-shaped cake of soap, which fits into and closes the orifice of the vagina, while the water passes through and distends the walls. We note *en passant* the increasing tendency evidenced at the last French Congress of Surgery to prefer the abdominal route for hysterectomy.—*Journal de Méd. de Paris*, December 19.

Olive Oil in Hepatic Colic.—Barth reports the successful result of the administration of large amounts of olive oil in two cases of hepatic colic with icterus, caused by incarcerated gall-stones. In one case 200 grams were taken every other day, and in the other 150 grams each day, the taste improved by a few drops of essence of anise. Part of the oil was found in the feces in a saponified condition, in the shape of small green particles which were at first erroneously supposed to be fragments of the gallstones. The rest was split into stearic acid and glycerin. The oil, besides lubricating the mucous surfaces and thus facilitating the expulsion of the stones, excites powerfully the secretion of bile, which flushes the biliary passages and removes particles that might ultimately develop into stones. On account of the increased secretion of bile, oil affects the system injuriously in adhesive cholecystitis, and it is also useless in dilatation and ascending suppurating infection of the biliary passages, and even injurious, on account of the impaired digestion and extra work forced on the liver.—*Semaine Méd.*, Dec. 1, 1897.

Improved Method of Sterilizing Catheters.—H. Alapy has perfected his method of steam sterilization as follows: A glass tube is selected large enough to hold the catheters without crowding, and a sheet of filtering paper, rolled in the form of a hollow cylinder, is slipped inside, which clings tight to the glass and absorbs the condensed moisture. The catheters are placed inside the paper, the tips up. The tube is then plugged at both ends with cotton in gauze, the lower plug pushed well up into the tube, which is then placed in the steam. When removed from the steam the paper is taken out and the tube shaken to prevent the catheters sticking together. They can be left in the tube until needed, all in sight. Experiments with anthrax spores, etc., showed that even the smallest catheters were thoroughly sterilized by this method in seventeen, fifteen, twelve, and even in ten minutes. Those that had been oiled and infected several days previously, and not cleaned, were rendered sterile in twenty minutes. He recommends the method as simple, certain, and except for spreading a little in the course of time, the catheters stand frequent sterilization in this manner without injury.—*Cbl. f. Chir.*, November 6.

Capacity of the Stomach in Infants.—A comprehensive study of this subject in Escherich's pediatric clinic results in the statements: 1. That the stomach of maternally fed infants is smaller than in the artificially fed. 2. That the true capacity of healthy stomachs is less than that of the functionally or anatomically morbid. 3. That the elasticity is greater in small stomachs, and 4, that the true capacity of the stomach is a function depending upon the size of the pylorus. With a narrow pylorus the capacity is large and vice versa. The practical importance of the research lies in the facts established that every healthy infantile stomach can by passive increase in the internal pressure, or from lavages, attain a capacity and retain it for some time, which stimulates dilatation. Large capacity after a lavage does not indicate either atony or ectasia. Repeatedly produced artificial gastroparesis injures the functions of even a healthy stomach musculature, much more where there is motor insufficiency. Consequently loading the infantile stomach should be solicitously avoided, and systematic lavages completely rejected, especially where there are gastroparetic or dilated conditions. The maximal single amount that should be allowed a normally developed infant is: First month, 90 c.cm.; second, 100; third, 110; fourth, 125; fifth, 140; sixth, 160; seventh, 180; eighth, 200; ninth, 225; tenth, 250; eleventh, 275; twelfth, 290.—Moscow Congress, *Wien. klin. Woch.*, November 4.

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SATURDAY, JANUARY 15, 1898.

THE RENEWAL OF THE ANTIVIVISECTION AGITATION.

Dr. GALLINGER of New Hampshire on Dec. 15, 1897, gave notice to the United States Senate of his intention to take up at an early day Senate bill 1063, with a view to deciding by a vote whether the bill shall pass the Senate. The bill is the same as S. 1552 of the Fifty-fourth Congress, "for the further prevention of cruelty to animals in the District of Columbia," which was favorably reported from the Committee on the District, May 26, 1896, but which failed to obtain consideration during the short session, or, as stated by Dr. GALLINGER: "Upon solicitation from several senators saying that they were receiving letters from their constituents protesting against the passage of the bill, I allowed it to drift along and did not ask for the consideration of it." It was introduced in the present Congress March 22, 1897, and having been reported favorably from the Committee is now on the Calendar, No. 136. Moreover, the deterring influence of the solicitations from the Senators aforesaid seems to have evaporated, as the bill will not be allowed by its senatorial pilot to drift along any further but will be brought up for consideration and vote.

We have already in our issues of Jan. 23, Feb. 6 and April 3, 1897, called attention to the gross injustice of the proposed legislation in its assumption that the cruelties practiced by the biologists of the District of Columbia, many of them Federal officers and all scientific men of National or more extended distinction, are of such a character as to require Congressional legislation for their restriction. The absurdity of the main argument of the originators of the bill must be manifest to all who are not zealots in the cause of the Humane Society. This argument calls for legislation to restrict scientific research in the District of Columbia because members of the Humane Society have testified to the horror which filled their souls on observing the atrocities committed in certain of the biologic laboratories of Europe and in thinking of the atrocities which might similarly be committed in the laboratories of the United States. We have called attention also to the assertions on behalf of the bill that no advance has been made in medical knowledge by any work conducted in the laboratories of the biologists, assertions which can be explained only by gross ignorance of the recent history of medical and sanitary progress, or by refractive errors of intelligence which throw all facts bearing on this particular subject out of the focus of mental appreciation. We have also shown, on the other hand, the efforts made by the profession to quiet this agitation of the so-called antivivisectionists. We have shown that not only all the medical associations and societies of the country, but all the scientific and sanitary societies, have memorialized Congress in opposition to the bill, and that even the Department of Agriculture has entered its official protest, citing the benefits to the lower animals themselves in connection with pleuropneumonia, tuberculosis, glanders, anthrax, hog cholera and Texas cattle fever, which could not have been obtained had the Bureau of Animal Industry been handicapped by such restrictive legislation as is proposed by S. 1063.

The AMERICAN MEDICAL ASSOCIATION has done its duty in this connection by placing itself on record as opposed to the bill, but individual members of the ASSOCIATION should not remain passive because resolutions have been adopted in general meeting. Resolutions are all very well in their way, but it is questionable if they will have as telling an effect on a vote of the United States Senate, as an argument by individual members of the ASSOCIATION to individual members of the Senate. Every member of the ASSOCIATION whose opinions have weight should place his opinions where their weight will be felt in a struggle to preserve the right of the medical man to labor in the cause of humanity untrammeled by the restrictive demands of "an over-zealous and intolerant local society" which, according to the Assistant Secretary of Agriculture, "appears incapable of taking a broad and liberal view of the subject."

Medical men in every State of the Union should aid their brethren in the District of Columbia in this fight against restrictive legislation, for if this bill is carried in the United States Senate, its provisions will speedily be brought home to them by the consideration of similar measures in their State legislatures.

Let us have a Department of Public Health!

ETHER AND CHLOROFORM.

In the *British Medical Journal* of Nov. 20, 1897, there appears an interesting paper on the comparative action of the principal anesthetics, ether and chloroform in particular, which was read before the section on anatomy and physiology at the late meeting of the British Medical Association by its president, Dr. AUGUSTUS D. WALLER. It is noteworthy in that it gives the results of experimental studies by a prominent physiologist, whose conclusions have, therefore, a certain authority and it was deemed of sufficient importance to form the subject of a leading article in the same issue of the *British Medical Journal.*

Dr. WALLER'S method of experimentation was to test the direct action of the anesthetic on the excitability of the nerve, taking freshly prepared nerves and submitting them to electrical excitation while enclosed in a chamber filled with the vapors of the different anesthetics, the effects being shown by a photographically recording galvanometer. By this method he tested the effects of the vapors of ether, chloroform, nitrous oxid, carbon dioxid, ethyl bromid and other anesthetics upon the nerve and found the results in striking agreement generally with their otherwise observed effects. Thus, ethyl bromid was evanescent but irritating, ethyl iodid produced lingering after-effects, and chloroform and ether powerfully anesthetized the nerve as shown by its galvanometric reaction, the formerly permanently and completely the latter temporarily. It is in regard to these last two agents, which are so extensively employed as anesthetics, that he specially directed the investigation and deduced the practical conclusions.

The chief question at issue in the researches of the Hydrabad commission on chloroform was whether this agent caused death through the heart or the respiration, and the latter view is that maintained by the Edinburgh school, which still advocates by preference chloroform as an anesthetic. It matters practically very little how death occurs, if it does occur, and the real question is what can be done to prevent it. Dr. WALLER'S experiments show that both ether and chloroform have a paralysant action on the highest form of tissue, nervous substance; the former temporarily, the latter permanently. The most important results of his study are summed up by him as follows:

1. Using ether and chloroform at an indefinite but high degree of concentration (about 40 per cent. and 10 per cent. respectively), the nerve has nearly always been anesthetized (= temporarily immobilized) by ether, killed (= finally immobilized) by chloroform.

2. Using ether and chloroform at various definite degrees of concentration (5 to 40 per cent. of the former, 1 to 5 per cent. of the latter) *the action of chloroform has been seven times that of ether.*

3. The action of mixtures of ether and chloroform (seven parts of ether to one of chloroform) is cumulative, the sum of the action of the two constituents.

4. Carbon dioxid *per se* does not increase, but rather diminishes the prolonged anesthetic effect of chloroform.

It will be readily seen that the above conclusions have very important practical bearings, and it is the discussion of these that forms the most important part of Dr. WALLER'S communication. If chloroform is seven times stronger than ether in its anesthetizing effect, the quantity of it required is necessarily small and the margin between the proper amount and excess is consequently diminished, thus creating a serious possibility of accidents, quite apart from any specially lethal qualities it may possess. Dr. WALLER criticises the statistics of deaths from chloroform and points out how far they may have been affected by unconscious prepossessions. The fact that the results of the administration have been so generally favorable that it requires the collection of thousands of cases to furnish any appreciable comparative ratios of mortality aids in this error; it is impossible for some with only a fortunate experience to appreciate the real possibilities of danger. Another fact vitiating the statistics is that only a portion of the chloroform fatalities are ever reported and Dr. WALLER, judging from personal knowledge, is inclined evidently to believe that the unreported cases considerably outnumber the reported ones. In Great Britain where chloroform is, more than in America, the commonly used anesthetic, this is very possibly true, and it should be borne in mind in estimating the value of such statistics. That this should vitiate hospital statistics, as he states it does, is less comprehensible and certainly less excusable.

The fourth of the conclusions reached is a rather striking one, and is perhaps liable to misconstruction as regards its practical bearings. If CO_2 is an anesthetic itself and yet an agent capable of aiding the recovery of the nerves from the effects of chloroform, it might be understood that the dangers on the side of the respiration in chloroform anesthesia are non-existent, or at least overrated. Dr. WALLER takes pains to counteract this error, the danger from impeded respiration in chloroform anesthesia is not from the accumulation of carbon dioxid, but from the accumulation and stagnation of chloroform vapor in the lungs. It is possible, he holds, that some mixture of CO_2 may be beneficial in the outset of chloroform administration, and this may be one of the factors in the success of its use in the hands of its adherents, but he expressly says that he does not recommend the administration of carbon dioxid with chloroform, or yet the administration of chloroform alone, and while he says that he is not "altogether adverse to its use," it is evident that the occasions for its employment are in his opinion very limited in number. It is in minor surgery especially that he deprecates its use, and he

states the case forcibly in the following two propositions, which he calls "the chloroform dilemma."

"If chloroform is dangerous under all circumstances, it may not be employed in minor surgery. Death in this class of cases is therefore unjustifiable, and should be considered as a criminal offence. If chloroform is dangerous only when unskilfully administered, then again death by chloroform is unjustifiable, and ought to be considered as a criminal offence."

While this dilemma might be better stated, its logic is certainly worthy of consideration; it leaves very little chance for escape from uncomfortable associations with any accident from the use of chloroform. Undoubtedly the greater ease and convenience of anesthesia with this agent will still ensure its use in many cases, but Dr. WALLER'S authority will probably have much weight and influence in diminishing the popularity it still enjoys.

The conclusion to be deduced from the investigation is that it is hardly necessary to seek for special dangers on the side of the heart or the respiration in anesthesia, as nearly all anesthetics are direct paralysants of nerve tissue, and the risk is not so much in the special organ they affect as in their strength as neurotic poisons. The one exception appears to be nitrous oxid, and we may possibly assume, with KEMP in another paper in the same issue of the *British Medical Journal*, that it acts in some way on the highest nerve center, the cerebral cortex. Whether it is as absolutely safe as is claimed is possibly open to question, though there is little doubt that it is comparatively safer than some other agents. For lengthy operations ether, with all its disadvantages, still seems to be the safest and therefore the preferable anesthetic. The study also emphasizes the necessity of the utmost care in the administration of chloroform, when that seems necessary, of avoiding the slightest possibility of carrying the dose above the danger point, which may be assumed to be not far above the optimum anesthetic quantity. The strength of the agent and the consequent small amount required leave a correspondingly narrow margin of safety in this case. The stronger the agent the greater the caution, altogether aside from any local action it may be supposed to have on special organs.

DIABETIC COMA.

PROUT'S words that "Diabetic patients constantly live on the brink of a precipice," are especially applicable to the most dreaded of all the complications of diabetes, namely, the coma characteristic of that disease.

In a recent lecture THOMAS B. FUTCHER[1] reviews the etiology, symptoms and treatment of diabetic coma. True diabetic coma was, it will be remembered, first accurately described in 1874 by KUSSMAUL. The frequency of the complication is shown in the collection of fatal cases by STEPHEN MACKENZIE from the London Hospital, in that all the cases under twenty-five, with one exception, died of coma. Of 400 cases studied by FRERICHS 250 died, and coma was the cause of death in 150 instances. Of the 39 cases treated in the Johns Hopkins Hospital 15 died, and in 12 death was produced by coma.

Young people, particularly children, are more liable to die of coma than are older patients.

SAUNDBY ranks constipation very high as a predisposing cause, as it diminishes elimination and affords time for fermentative processes that may produce toxic substances. In some cases coma has come on after nervous shock and exposure to cold.

Of the many theories devised as regards the exciting cause of diabetic coma it is necessary at this time to refer only to those which attribute the coma to the presence of either acetone, diacetic acid or β-oxybutyric acid. Now these three substances are very closely related, as shown by their chemic composition and reactions. The detection of acetone in the urine of patients with diabetic coma first led observers to believe that this was the cause of the coma, a view now no longer held because acetone can be given to animals in large quantities without causing intoxication. Acetone also occurs in the urine in many other diseases, especially in severe cachexia, as well as in certain acute infectious diseases.

The appearance of acetone in the urine in diabetes should put the physician on his guard, as its presence is often succeeded by that of diacetic acid and β-oxybutyric acid.

In 1874 RUBSTEIN[2] demonstrated that the substance discovered by GERHARDT[2] in 1865, and which gives a Burgundy red color with ferric chlorid, was diacetic acid. Now it was for some time believed that this acid resulted from the oxidation of sugar, and MINKOWSKI[2] tried to show that the intensity of the ferric chlorid reaction and the amount of sugar in the urine ran parallel, but that sugar is not necessary to the production of diacetic acid is shown in various ways, especially well by the fact that this substance has been repeatedly demonstrated in the urine of fevers, carcinoma, and other diseases without glycosuria. The present opinion is that diacetic acid and acetone are products of albuminous decompositisn. In the majority of instances of diabetic coma diacetic acid appears in the urine previous to and during the attack, but KUSSMAUL[2] and FRERICHS[2] have shown that it does not possess any poisonous properties, because ten to twenty grams of the acid can be given without any grave symptoms.

In 1884 STADELMANN, KUSSMAUL and MINKOWSKI showed that the urine of patients with diabetic coma contains considerable quantities of β-oxybutyric acid.

[1] New York Medical Journal, Dec. 18, 1897.

[2] Futcher, loc. cit.

This acid is now believed by most observers to be the exciting cause of diabetic coma. It results from decomposition of the body albumins, and many believe that it is the first stage in the formation of diacetic acid. The amount of β-oxybutyric acid eliminated daily may be as much as 20 gms. Its occurrence in the urine in diabetes is of the gravest moment, as it is permanent and has a constant tendency to increase. VON NOORDEN[3] shows that this symptom is of the gravest prognostic significance; in most cases after a few days or weeks, diabetic coma ensues and the case passes on to a fatal ending. Hence it may be concluded that diabetic coma is caused by an acid intoxication, due to certain products of decomposition of the body albumins, viz.: β-oxybutyric acid, and possibly also diacetic acid.

The premonitory symptoms of diabetic coma vary. It may begin with maniacal excitement, or more commonly abdominal pain or headache; the pulse is sometimes rapid. At times suddenly, but occasionally after headache and indefinite symptoms resembling alcoholic intoxication for a few hours or days the patient becomes somnolent, and more or less rapidly falls into deep coma. He now lies quietly with at most but slight clonic twitchings; pupils dilated; the eyes may be open, or the lids are slowly raised and lowered. The pulse is small and rather rapid; the temperature at first elevated, later sinks far below normal. The respiration is marked by deep, long-drawn inspiration, succeeded by short expiration. In spite of full aeration of the lungs a gradually increasing cyanosis arises, due apparently to obstruction in the peripheral circulation. The breath may have a fruity odor from the exhalation of acetone. In this condition the patient remains for from twenty to forty-eight hours, rarely longer, and then death follows.

FRERICHS classifies cases of diabetic coma into three groups:

1. Those in which the attack begins suddenly, usually after exertion, and terminates fatally after a few hours.

2. Those in which the duration is longer, the attack being preceded by various symptoms, among others great distress and dyspnea, a condition called by KUSSMAUL "air hunger." The attack may last for from one to five days.

3. Those in which the attack begins without dyspnea or anxiety but preceded by headache, signs of intoxication, disordered gait and gradual onset of the coma. These cases were believed to be due to the action of the poison on the nervous system. The symptoms closely resemble alcoholic intoxication.

The prognosis is grave. There are only three or four cases reported in which recovery has taken place. Prevention is therefore the primary indication in the treatment. All predisposing causes such as constipation, fatigue, nervous shock and cold should be avoided. VON NOORDEN says that in the prodromal stage when this is recognized, a change of diet, no matter what this may have been, often exercises a beneficial influence. A large amount of alcohol in small doses is necessary. Constipation should be relieved by mild laxatives. Large doses of alkalies have been recommended, e. g., six or eight drachms of bicarbonate of soda per day, according to the theory that the condition is one of acid intoxication.

When the coma has actually set in our present remedies are helpless. Transfusion of blood, inhalation of oxygen, injection of weak solutions of phosphates and chlorids of sodium into the veins, and of a 3 per cent. solution of sodium carbonate have all been used. Intravenous injection of the last solution was successful in only one case of seventeen collected by CHADBOURNE[4], temporary improvement being obtained in seven. A very common method of treatment at the present time is the subcutaneous and intravenous injection of quantities of normal saline solution at frequent intervals. VON NOORDEN recommends this method highly, and it would seem to be a rational one In ten of the twelve cases in which coma developed in the Johns Hopkins Hospital this treatment was used, and in two of the cases the patients were restored to consciousness so that they would have been capable of making a will. Subsequently both cases terminated fatally. In three other cases the pulse was improved and the respiration rendered much less labored. Subcutaneous and intravenous injection of salt solution seems to give the best results yet obtained in diabetic coma. In addition injection of camphor and ether may be advised, because they are indicated by one symptom seldom absent in diabetic coma, namely, weakness of the heart.

[3] Twentieth Century Practice of Medicine, vol. ii, p. 95.

[4] Quoted by Futcher, loc. cit.

HEALTH AND LONGEVITY.

The influence of various occupations upon health and longevity is the subject of an interesting investigation just completed by an officer of the Registrar-General's department of the British government. A vast collection of figures and comparative tables have just been issued as a public document, and although at first glance the array of statistics seems formidably dull, some of the deductions from them are instructive and of the widest interest. First and foremost comes overwhelming proof that the work or occupation of some sort, is the greatest promoter of longevity. It is almost alone in England of all civilized countries that this fact can be brought out clearly in public statistics, for it is only in England that the leisure class, so called, is sufficiently large for the comparison to be made. The disparity between the mortality of "occupied" and of "unoccupied" males is very great in favor of the workers, though the data do not

allow the naming of any precise percentage when certain necessary allowances have been made.

The influence of profession upon health and mortality, it is pointed out, begins to be strongly manifested at about the age of 25 years and continues until 65 years. Of course, the employments usually regarded as dangerous figure prominently, file-making taking a bad pre-eminence. The publican class (saloon-keepers) comes next. Innkeepers themselves die more rapidly than their servants, alcoholism and diseases of the liver being the chief causes. The mortality figures of public-house keepers show seven times and of their servants four times more rapid death rate than for the general average of occupied males. It is curious, however, that the death rate for these two classes is highest in the industrial districts of England and lowest in London. Brewers and butchers rank next among important occupations on the high mortality list. They are respectively two and one-half and two and one-fourth times the standard. Chimney-sweeps, dock laborers, coachmen and cabmen are all on the wrong side of the mortality average. At the other extreme are most of the liberal professions, and the clergy enjoy the enviable distinction of passing the greatest number of years in this vale of tears.

Locality seems to have a startling effect upon the mortality records, although this cause is shown to be much more apparent than real. Taking England as a whole, it is shown that 100,000 males born are reduced to 75,149 at the end of the fifth year, while 100,000 females will number 78,324 at the end of the same period. But in certain selected, so-called healthy districts of England and Wales, this reduction is not accomplished until after twenty-nine years in the case of males and twenty-seven years in the case of females. The contrast is even greater in the case of a single city. Thus, in the township of Manchester, which includes only the well-populated section of the city, 100,000 males are reduced to 62,326 in five years and 100,000 females to 66,623 in the same time. But in the healthy districts of Manchester this reduction is not accomplished until the age of 50 among males and the age of 48 among females. Whence it is fair to conclude that the general manner of life and condition of poverty or comfort are much more important factors in the problem of life than mere locality.

THE JOURNAL AND THE ASSOCIATION.

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION began its new year with an increased number of pages, and proposes to continue to furnish the same amount of reading pages throughout the year, thus putting it a safe distance ahead of all its American contemporaries.

A new press has been purchased and is now in operation. The vast amount of MSS. now in the office awaiting publication will, we trust, be reached much earlier, although the members must be aware that it is a manifest impossibility to make use of all the valuable material that comes in to the office, even with the increased number of pages.

The growth of the ASSOCIATION during the past year has not been exceeded by its growth in any previous year, and all that is now needed to maintain it in a healthy condition is, that the members shall once more come to the front, look at their JOURNAL critically, compare it with similar publications, and induce their friends, not already members, to join the great ASSOCIATION. There is no reason why the AMERICAN MEDICAL ASSOCIATION should fail to occupy the same relation to the whole profession that the British Medical Association does to that of Great Britain, where every physician in good standing with his fellows, is, or is supposed to be, a member of the British Medical Association.

As for the JOURNAL, its work in the past speaks for itself, and its growth in the future will depend upon the support and encouragement received from the members of the ASSOCIATION, subscribers and contributors. At no time has its prospects seemed brighter; at no time did it seem to meet more closely the views of its founders. That it is capable of still further improvement, no one doubts, as the moment it ceases to improve, then will it begin to decay.

Not only is the JOURNAL useful to the ASSOCIATION and its important members, but it has a still far-reaching influence beyond that noticed, because at no time has it been more widely quoted at home and abroad by other medical journals than at the present time. The higher average medical education of the present date is having its influence on papers read at the ASSOCIATION meetings; much better work has been done in its Sections, and altogether the retrospective view is pleasant. The increase of reading pages will not only give room for more original matter, but will probably increase the amount of space for Society Proceedings—a very important department of the JOURNAL of which it is impossible to over-estimate the value. Important discoveries and the results of individual research are usually presented first to the local society, although the proceedings are necessarily reported in smaller type, as even the capacious columns of the JOURNAL with its sixty pages of reading matter, exclusive of the advertising pages, can not afford space for everything in pica. The reader must himself to some extent, also separate the wheat from the chaff, but it is interesting to remember, for instance, that the two communications which seemed to attract great attention at Moscow, "MURPHY'S suture of the arteries," and "FRANK'S absorbable coupler," were both presented at a meeting of the Illinois State Medical Society, and reported in the JOURNAL,

June 12, 1897, some time before the meeting of the Congress. "DOYEN'S drain," which was also presented in Society reports, and numerous other instances, crowd upon the memory, of the important achievements of the vanguard of science modestly chronicled in "Society Proceedings" without even a distinction of a separate place in the index, long before the medical world in general awakes to a realization of their value.

In the last year an important historic work, never before translated into English, has been placed at the disposal of American surgeons through the columns of the JOURNAL, without extra cost, and it is therefore with some satisfaction that we reflect on the achievements of the past year, and venture to express the hope that at the close of the year 1898 we shall be able to show even more substantial progress.

To this end we again urge that the members once more take up the aggressive and use their utmost endeavors to make the ASSOCIATION and its JOURNAL a fitting and worthy representative for all that is good for the American medical profession. The membership should be brought up to 10,000 before the Denver Meeting. Great strides have been made toward that end, but let us not relax our efforts.

THE DEATH OF MR. ERNEST HART.

The death of Mr. ERNEST HART, the editor of the *British Medical Journal*, comes with a shock to his many friends in America, most of whom had already learned that he was in feeble health. They sympathized with him in his recent illness and operation, but from the reports published they had been led to believe that he was fairly convalescent.

His death leaves a gap in the ranks of medical journalism which can never be filled. He had an instinctive delicacy of judgment, made few mistakes and popularized the *Journal* as no man preceding him had been able to do, and at the same time made it one of the financial successes of the age. He had learned the art of being aggressive without offending, and the *Journal* under his management has been right in its advocacy of all those reforms in which the whole profession is interested.

As a writer he was forceful, accurate and aggressive. As a man he was unassuming, polite and agreeable. As a physician he was well informed, and in certain lines in advance of his time. He will be greatly missed, for his place in medical literature was peculiarly his own.

CORRESPONDENCE.

Foreign Medical Training for Recent Graduates.

VIENNA, AUSTRIA, Dec. 20, 1897.

To the Editor:—"Foreign Medical Training for Recent Graduates" is the title of a late editorial article in the JOURNAL, and as it is a subject of most vital interest to many young men who belong to this class, I propose to discuss the question briefly in this letter. I do this the more readily from the fact that many of my friends, who are aware of the fact that I have spent some years abroad, are in the habit of writing to me for advice as to where they had better put in a few months' time in brushing up on the practical points of their profession. I am prompted further in writing this letter, by the fact that I meet here in Vienna, every day, young physicians from the United States, full of energy and wide awake, who are working with an untiring will, but who, from the fact that they are ignorant of the German language and do not propose to stay here until they master the same, are, if not wasting their time, certainly not spending it in a profitable manner.

Let me suppose the case of a young man who has had a few years of general practice, or perhaps has only just graduated. The field that he occupies, or the one that he proposes to occupy, is one where he must play the rôle of the general practitioner in its widest sense.

To keep abreast of the times, he feels the necessity of further instruction, especially in the more practical matters that pertain to his profession. But in looking over his environments, two obstacles present themselves at the very outset. His means are limited and he can only spend a few months away from his field of labor. Where shall he put this time in, at home or abroad? Most decidedly at home, unless however there is a large element of fraud and humbug in his make-up, and he is seeking a very little knowledge and a good deal of buncombe.

Our post graduate schools at home were organized for just such men as he is, and they teach, in the main, just what he most needs to know. A couple of six weeks' courses at one of the best of these will be of more benefit to him than many months spent in a foreign country, where he has first to learn the language before he can profit by what he sees or hears.

Twenty odd years ago, when I first came to Vienna, the condition of things was entirely different. There was no post-graduate instruction to be gotten in the United States at that time, nor, in fact, anywhere else outside of the Austrian capital. In fact, two decades ago this was the acknowledged Mecca, to which all medical pilgrims turned their footsteps who were in search of a higher and more practical medical education.

Some years ago, after leaving here, I went to Guy's Hospital in London, and giving the late Dr. Reese my card asked the privilege of attending his lectures for a time. His reply was: "Yes, Doctor, you are perfectly welcome to attend my lectures, but if you have been taught clinical medicine by Jaksch and Nothnagel at Vienna, you will find anything in that line to be gotten here in London very thin." And thin I found it.

I am glad to say, however, that the number of young physicians from America who are coming to Vienna is gradually diminishing, and we have not more than half as many here now as there were twenty years ago. I believe though that part of this falling off in numbers is due to the fact that more Americans go to Berlin for instruction than in former years.

The private instruction given here is done by the ordinary professors and privat docents. In several branches this class of instructors is far inferior to those of a decade and a half ago. For instance, Bandl, who taught us in gynecology, and Ultzmann in the diseases of the genito-urinary organs in the male, are both dead, while Jaksch, Pawlik and Chiari have been called to fill professorships in the German University of Prague, and their places, in my opinion, have not been filled by men of equal merit as teachers.

Who should come to Germany, in which I include Austria, to pursue their post-graduate studies in medicine, and what are some of the advantages to be obtained here? It is not sense to come here unless you have some knowledge of the German language or intend to stay here long enough to acquire the same. An ordinary traveling knowledge of the language will be of but little benefit to you. You must know

medical German, and that requires a good deal of time and study, as their technical terms are not like ours and the French, derived from the Greek and Latin, but are mostly strictly German in their origin. It will take from three to six months' diligent study to be able to thoroughly understand what you hear. If, however, you are not too far advanced in years and have a sufficient amount of money and time at your disposal, the benefits of a course of study abroad are certainly not to be ignored, for besides what you know of medicine proper, the acquisition of the knowledge of a foreign language is no small factor in the make-up of an all-around educated man, which every physician should strive to be.

Supposing you understand German, or intend to stay in Germany until you acquire such a knowledge, what are the subjects that are better taught here than at home! First comes internal medicine. Not because the subject is better understood or more skilfully taught than by our best teachers, but because the clinical material is much more abundant here and can be much better utilized for clinical purposes, and the numbers of those to be taught are much fewer in proportion to material available. If one takes Professor Nothnagel and his first assistant, you have thus access to a large number of patients whom you can personally examine, make your own diagnosis, and have it corrected or criticized by your teacher; hear many of these cases discussed fully by one of the best teachers in Europe and follow them to the dead-house, if they die, and observe all the morbid changes that an autopsy reveals. There may be just as good courses as these at home, but I have not been able to avail myself of them, for I have not been able to find them. In the post-graduate courses I have taken in America the teaching of internal medicine has been extremely disappointing, partly on account of its being simply didactic in character, no material being available to give it a true clinical worth.

Again, in the line of obstetrics, you take Professor Schauta's course and that of his first assistant, and these will enable you to watch the course of a large number of natural labors, and you can be called at any hour of the day or night to witness any operative cases that may occur. When we consider that three or four thousand women are delivered annually in this service you can form some idea of the rich field of observation that it gives. Besides this you can examine a large number of women in the last weeks of pregnancy, measure their pelves, and determine the position and presentation of the child before labor begins.

Where, I ask, would you be able to get advantages like these in the United States? The larger number of Americans here are studying some special subjects, as the eye, ear, nose, throat and the like, and the merits of Vienna as compared with other places for studying these subjects I can not judge, though I find that many get discouraged after remaining here for a short time and return to London or New York. Many of these men who are preparing themselves to play the rôle of specialists are youths just out of college. Few of them seem to be studying that which should be the ground work of a thorough medical education, viz., internal-medicine.

For one who understands German, and especially if he has had a few years' practice, the best place to put in a couple of months in Europe is at Berlin, taking in the "Ferien Curs für Ärzte," which begins early in the Autumn and lasts six weeks.

Still, as I said in the beginning, such a course can be gotten in our own country at a much less expense and, taken as a whole, just as good. The exception to this is that the course in gynecology, given by Martin, is better than can be gotten in America, and I am certain that his brilliancy as an operator is not excelled, if equaled, anywhere or by anyone.

A large number of our young men in the profession are surgery mad, scalpel crazy and see nothing in any case that is not associated with the spilling of blood, the tying of arteries, the closing of abdominal wounds and the application of the model antiseptic dressing. To such I would say, do not come to Europe at all, for I can assure you that you can do much better in America. Here, in Vienna especially, operations seem to be done principally for the benefit of the ten or a dozen assistants who surround the patient.

Then again the teaching is not so good as one can get in New York or Chicago, and the operating is certainly in no way superior. Especially will you find both the medical and surgical gynecology disappointing as compared with what one can see at home if he will follow the work of our best men.

Many of the teachers here in the Vienna school seem to have achieved their positions through some other consideration than their natural ability to teach, as in the case of Bilroth, who was one of the most scientific surgeons of this century, but never was a good teacher.

Hence, of late years, when I am in Europe I go to Paris for my surgery; not that it is better done there than here in Vienna, but because the French professor in the school of medicine in Paris is generally a born teacher, explains every step of his operation and allows you, if possible, to see what is done. Then again American physicians are treated courteously in France, while in Germany, if you are not a Senn, a Murphy or some other man of equal eminence you are not likely to get any civilities that you do not pay for; in fact, they seem inclined to put us all down as the graduates of a Buchanan school or some other quack institution.

W. S. Caldwell, M.D.

Medical Treatment of Appendicitis.

Oneida, N. Y., Jan 10, 1898.

To the Editor:—Much has been written of late years on the surgical treatment of appendicitis, but very little on the medical treatment. In a practice of nearly forty years I have had my share of cases, ranging from five to twenty yearly, and thus far have had no case that I have found it necessary to operate more than to aspirate in case of abscess. I have had only one death, a boy 15 years of age, who was hurt while playing at school, and this case, in my opinion, died from lack of good nursing.

My treatment can be given in brief. Although adopted more than thirty-five years ago, I have never witnessed another line of treatment that has caused me to change my own. Unfortunately, many physicians are not correct in their diagnosis, and frequently call peritonitis (especially if pelvic) appendicitis. It is true that the symptoms are in part alike. Both diseases are usually ushered in with a chill followed with fever and abnormal temperature, and my treatment is alike, or nearly so, in both diseases.

If called in the first stage, and there is much pain existing, I give a hypodermic of morphia and atropia, usually $\frac{1}{4}$ grain of the former and $\frac{1}{150}$ of the latter. Ice-bags filled with chopped ice are applied over the seat of pain, and possibly followed after twenty-four or forty-eight hours with poultices, preferably of yeast and charcoal with a good quantity of nitrate of potassium added. The medical treatment consists of commencing at once with tinct. of aconite to control the fever and reduce inflammation, in $\frac{1}{4}$ minim doses repeated every two hours, and $\frac{1}{120}$ grain of corrosive chlorid of mercury every hour, with a teaspoonful of olive- or castor-oil every two or three hours.

I have had cases where I have commenced with 15 to 20 grains of calomel, followed by the above treatment. In some very few cases an abscess has formed in the iliac region which I have aspirated, and then use compression. I have had cases where the abscess broke into the colon and the patient made a good recovery. About a year ago I was visiting in a city some seventy-five miles west of Chicago, and I was told that only a short time before, a man of that city was seriously sick with what was called appendicitis, and a celebrated surgeon of Chi-

cago was called and advised operation at once. This the family would not consent to, and in the evening an old lady came in and recommended giving the patient all he could drink of a tea made of timothy grass seed, and a huge poultice of the seed applied to abdomen. This was done and in less than twelve hours the man was better, and rapidly recovered. I tried the above in a case of a lady a few months ago, but feeling that it was unsafe to depend entirely upon this, I gave my usual treatment and she made an uneventful recovery.

H. W. CARPENTER, M.D.

The Antiseptic Versus the Antitoxin Treatment of Diphtheria.

PHILADELPHIA, PA., Jan. 10, 1898.

To the Editor:—I am not informed whether it is your custom to admit to your columns criticisms of papers appearing therein, but upon reading the paper of Dr. Braymer in the issue of November 27, I am tempted to test the facts in that direction. The point which the paper attempts to cover: "Is, or Is Not Antitoxin the Best Treatment Offered for the Cure of Diphtheria," is one that we supposed had been definitely settled through exhaustive clinical experience, covering a period of time sufficient, it would seem, to justify an affirmative answer in the minds of the most captious. On the contrary, like Banquo's ghost, the subject will not down, and following the usual experience in medical investigation, need we expect it to be set at rest for a century to come? Parallel cases may be cited to prove the likelihood of this prophecy; note the school of anti-vaccinationists which flourishes in our own day. Indeed, we find that there is hardly a proposition advanced in any school, no matter how probable, but finds it's opponents for a large number of years to come. With the results of clinical theories, however, if the antitoxin treatment can be so called at this time, this communication is not intended to deal, but more particularly with the handling of those theories.

Dr. B. in his second paragraph states: "I have had very limited experience with the remedy, but as yet can not feel that it is worthy of the *advertising* [italics are ours] it has received at the hands of the profession."

In a list of some seventy-four cases, covering a period of years, the Doctor recounts six cases treated with antitoxin. The mortality during the first period under potassium chlorate, iron and calomel treatment, was in thirty-six cases, seven, or 22.22 per cent. During the second period, under antiseptics, there were thirty-two cases with *nil* mortality; and during the third period six cases with two deaths, 33⅓ per cent. This would apparently make a strong showing for the antiseptic treatment were it not for the important qualifying elements of character of epidemic, class of cases, etc. The importance of this is well stated in another portion of the paper: "All who have met with many cases of diphtheria know how different the fatality is." "You also know that there is the factor of varying vitality manifesting itself in different individuals." Continuing the Doctor says: "I believe all will agree with me that diphtheria is primarily a local disease, (!) then we ask the question, why not treat it as you would any other like condition, why not treat it successfully by antiseptic?" Why not, indeed? The bite of a rattlesnake, if such can be called a disease, is primarily local, but how long does it remain so? The same might be said for anthrax and tetanus, syphilis, gonnorrhea, and in fact almost all contagious diseases.

In my student days it was the habit of an esteemed professor of surgery to give the class a literal and concise method of treatment for all surgical cases. "Take away the cause and put the part at rest." If this advice could be promptly followed in all cases, the practice of medicine and surgery would be a very simple affair.

If I may be allowed I will quote once more from the Doctor's paper and then conclude: "If antitoxin does any good at all it is only to counteract the effect of the absorbed toxin of the disease." "And those (cases) that have been of several days standing without treatment are admittedly not so much benefited by antitoxin, *perhaps* [italics mine] not more so than by any other rational treatment. Then again the use of antitoxin causes great pain and fright, especially in small children, and this alone might be a cause of death."

There are a few conclusions that I would draw from the reading of the paper. 1. That the Doctor greatly errs in ascribing to the profession generally, or individually, a lack of sincerity in the use of the antitoxin, or an intention to advance the interests of manufacturing houses in the advocacy of its use. 2. That after more insincerity is displayed in ill directed opposition to a remedy or the publication of incomplete collections of cases bearing on their face ample evidence of lack of careful analysis and detailed history.

W. H. BURR, M.D.

A Case of Puerperal Eclampsia (Ante Laborem) With Recovery.

PARK CITY, UTAH, Jan. 8, 1898.

To the Editor:—As there is a good deal of uncertainty in regard to the exact pathology and treatment of puerperal eclampsia, it would possibly throw more light on the management of this dreaded disease if the physicians reported every case in their practice and the line of treatment pursued; especially does this seem important when it is remembered that according to statistics the mortality is 40.5 per cent. if the convulsions set in before the time of labor and about 29 per cent. during labor.

Oct. 28, 1897, I was called on to prescribe for Mrs. S., age 22; pregnant about thirty-seven to thirty-eight weeks; primipara. She was troubled some with vomiting and complained of being very nervous and restless so that she could sleep but very little during the night; had quite a severe pain in the stomach and a good deal of headache. The urine was examined and found normal.

Anodynes were prescribed to quiet restlessness and also lithia water as a precaution, although no kidney lesions could be found. Her husband neglected to obtain the lithia water.

November 1, about 9 o'clock, P.M., I was sent for. Mrs. S. was in convulsions. On my arrival she had just passed out of the first convulsion and was snoring heavily. In about twenty minutes she had another severe one. A hypodermic injection of gr. ¼ morph. and gr. 1-150 atropin soon controlled it. There were no uterine contractions. A brisk cathartic was given.

She had during the night seven severe convulsions. She bit her tongue quite badly. The pulse at times went up to 122 per minute. The convulsions were held somewhat in check with morphin and atropin, and Norwood's tincture of veratrum viride. I bled her once by opening the median basilic vein of the right arm drawing about a quart of blood; this seemed to check the convulsions for a couple of hours.

As the convulsions toward morning increased in frequency, at 8 o'clock I decided to bring on labor. Under partial chloroform anesthesia, the cervix was gradually dilated by means of the Barnes bags and the fingers. At half past nine she was delivered of a dead baby. The placenta was removed after twenty minutes and the uterus contracted well. She had one convulsion during the manual dilatation of the cervix. About five hours after delivery she had another severe convulsion; this was the last, making in all nine convulsive attacks. She was unconscious to external surroundings and had no recollection of what had taken place from the first convulsive seizure and until about a day and a half after delivery.

During the puerperium the thermometer registered only

once half a degree above normal. She was given lithia water and the bowels kept open every day. The wounds on the tongue were washed with antiseptics several times a day. The vagina was syringed three times a day with bichlorid of mercury solution. She made a splendid recovery.

E. VIKO, M.D.

"A New Method of Inviting Sleep."

NORTHAMPTON, MASS., Jan. 3, 1898.

To the Editor:—I hope a large number of the readers of the JOURNAL will refer to the September 25 issue and examine the article on "A New Method of Inviting Sleep" and express their opinion of the principle therein contained.

Thinking obstructs sleep. Draw away from the centers of thought power to carry on muscular effort as there described, an equilibrium is established and the normal conditions of sleep exist.

It is not necessary to put in practice this method in order to pass judgment upon its claim as a scientific principle.

Will the many medical men interested in reducing our practical work to the normal basis give us through the JOURNAL an estimate of this method?

I should personally be greatly pleased to receive through the mails any opinion at variance or in consonance with my own.

Respectfully, J. B. LEARNED, M.D.

One Way to Prevent Abuse of Medical Charity.

CHICAGO EYE, EAR, NOSE AND THROAT COLLEGE.

CHICAGO, ILL., Dec. 14, 1897.

To the Editor:—In the *N. Y. Medical Record* of November 27, is given a copy of a circular letter recently issued by the New York Cancer Hospital, which is sent to the family physician of all patients applying to their clinics for free treatment, in which inquiry is made as to the ability of the patient to pay. In all cases wherein it is learned that the patient is able to pay further clinical services are denied.

The same idea was adopted by the Chicago Eye, Ear, Nose and Throat College several months earlier as may be seen by appended copy of letter issued at the time of its organization, to every doctor in Cook County.

Would it not be just to place the credit for the idea where it belongs, and give us the precedence of having adopted a practical means for discouraging clinical pauperism?

Yours truly, J. R. HOFFMAN, M.D., Sec.

CHICAGO EYE, EAR, NOSE AND THROAT COLLEGE,

CHICAGO, ILL., March 26, 1897.

Dr.———

Dear Doctor:

M——— has applied to us for treatment as a charity patient, and has given your name as having been the former medical attendant. We have been led to suspect that this patient is not entirely unable to pay, and hence is not entitled to free treatment, which it is our aim to extend only to the worthy poor.

Do you consider the above mentioned patient as being one entitled to free treatment?——— We will consider this communication as strictly confidential. If not a worthy poor patient, will decline to extend further free treatment, and refer same to you. Yours very truly,

CHICAGO EYE, EAR, NOSE AND THROAT COLLEGE.

Confidential remarks.

Medical Law in Indiana.

CHICAGO, Jan. 10, 1898.

To the Editor:—Will you kindly give through the JOURNAL the new or present medical law in Indiana, and oblige

A SUBSCRIBER.

New Indiana Law as to Practice of Medicine.—After the taking effect of the act approved March 8, 1897, any person desiring to begin the practice of medicine, surgery or obstetrics in Indiana, must procure from the State Board of Medical Registration and Examination a certificate that he is entitled to a license therefor. To do this, he must submit his diploma, and make affidavit of the time and under what circumstances he received it. Besides, the affidavits of two freeholders, resident in his county, stating that he is the person named in the diploma application for a certificate, must accompany the application. The fee is $6. All persons already practicing, are given ninety days to obtain a certificate, by presenting to the board the license possessed by them at the time of the passage of the law, with an affidavit that they are the legal possessors of the same, and the persons mentioned therein. The fee they must pay is $1. The board's certificate, when presented to the county clerk of the proper county, entitles the holder to a license to practice medicine, surgery and obstetrics in Indiana, on payment of 50 cents for issuing and recording it. If an applicant presents a diploma from a medical college which is not recognized as maintaining a sufficiently high grade or standard of medical education as defined and fixed in the records of the board, he is given the privilege of being examined as to his qualifications, in such manner as the board may provide, and if he fails once, may try again within twelve months. Fee, $25. An appeal also lies, on giving bond for costs, to the circuit or superior court, to require the board to show cause why he should not be permitted to practice. Change of residence from one county to another requires a new license, to be obtained by filing the old one with the county clerk of the latter county. The board is to be composed of five members, appointed by the Governor from reputable physicians of the State, graduates of a college of medicine of good repute. Each of the four schools or systems of medicine having the largest numerical representation in the State shall be represented on it, but not more than three members shall be of one political party. No professor or teacher in a medical college is eligible. Meetings shall be held on the second Tuesday in January, April, July and October of each year, at least. Schedules of the requirements made of applicants for examination, and of medical colleges, must be kept, and, after 1897, no change shall be made therein after the month of January of each year or affect students theretofore matriculated. The board is not to discriminate for or against any school or system of medicine, or prescribe which shall be taught in State institutions. But it shall have power to make all necessary rules and regulations for reciprocal recognition of certificates issued by other States, and to prevent unjust and arbitrary exclusiveness by other States of Indiana graduates who have filled its requirements. It may refuse to grant a certificate to any person guilty of felony or gross immorality, or addicted to the liquor or drug habit to such a degree as to render him unfit to practice medicine or surgery, and may, after notice, hearing and judgment of "guilty" thereon by the judge of the circuit court, revoke a certificate for like cause, subject to appeal. Midwives of ten years' practice are also allowed to procure certificates, within ninety days, on affidavits. Others must present diplomas from a recognized obstetric school, or pass an examination. Nothing in the act is to prevent rendering services in emergencies or administration of family remedies. Neither is it to apply to any commissioned officer of the United States army, navy or marine-hospital service in the discharge of his duties; nor to any physician or surgeon, who is legally qualified to practice in the State or Territory in which he resides, when in actual consultation with a legal practitioner of Indiana; nor to any physician or surgeon residing on the border of a neighboring State and duly authorized to practice under the laws thereof, whose practice extends into Indiana, provided, he shall not open an office or appoint a place to meet patients or receive calls in Indiana. It is further provided that this act shall not be construed to prevent medical students from practicing medicine and surgery under the immediate supervision of a licensed physician; nor shall it apply to legally qualified dentists when engaged in the exclusive practice of dentistry; nor to any optician who shall hereafter engage in the practice of optometry; nor to non-itinerant opticians engaged in the practice of optometry in Indiana at the time and prior to the passage of this act. To open an office for such purpose or to announce to the public in any way a readiness to practice medicine in any county in Indiana, or to prescribe for, or to give surgical assistance to those suffering from disease, injury or deformity, shall be to engage in the practice of medicine within the meaning of this act. Any person who shall practice medicine, surgery or obstetrics in Indiana, without having a license duly issued as provided therefor, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not less than $25 nor more than $200.

"One Dr. Eastman."

INDIANAPOLIS, IND., Jan. 6, 1898.

To the Editor:—In the issue of the JOURNAL for December 25, Dr. M. Price of Philadelphia, discussing extra-uterine pregnancy, observes: "My case at term, reported some five years ago, was in the tenth month of gestation and in the amniotic sac. The mother and child are today both living and well, the child a beautiful little girl. This case is reported in 'Greig Smith's system of Abdominal Surgery' as operated by one Dr. Eastman. No one of the name is known to belong to the profession of Philadelphia. This goes to illustrate the worthless character of the statistics of even eminent authority. This case is stated by Smith to be the only one in America where mother and child both lived." At the ouset we will disclaim any intention to champion the accuracy of Greig Smith's statistics, since indeed a typographic error in the volume referred to made it appear that "Eastman of Philadelphia" (*instead of Eastman of Indianapolis*) had operated in tubal pregnancy, saving mother and child. But because of this single error, shall Dr. M. Price conclude recklessly, "my operation has been credited to one Dr. Eastman?" We think not. In the statistic assailed the words "Eastman of Philadelphia," were marked by an obelisk which it was intended should refer attention to a foot-note at the bottom of the page, giving the *American Journal of Obstetrics* of October, 1888, as the source of the operation of "one Eastman." It is passing strange that Dr. M. Price did not remark this date, 1888. Why did he not take up his *American Journal of Obstetrics* and learn to whom Greig Smith alluded? Dr. Price says, "my case was reported some five years ago." According to his own statement, therefore, not earlier than 1892. The case of Dr. Joseph Eastman of Indianapolis, is recounted in nearly all of the standard text-books dealing with such matter, which have appeared since July 10, 1887, the date of his operation (Playfair, Greig Smith, Pozzi, Keating and Coe, etc.), and has been discussed in French, German and English magazines. In all instances except one (Greig Smith's work) this particular operation has been ascribed to Dr. Joseph Eastman of Indianapolis. Dr. Price in including the case among his own, indeed "illustrates the worthless character of the statistics of even eminent authority." Many of the works (notably that of Greig Smith, 1889) and magazine articles referred to were published several years before the confessed date of Dr. Price's operation.

We assume, with no thought to commentate concerning the scope of Dr. Price's reading, that none of these have come to his notice. It remains to be added that the method employed in the two operations controverted was essentially different. Dr. Price left the amniotic sac stitched to the wound and placenta *in situ*; whereas Dr. Eastman removed the entire sac, clamped the uterine end of the tube and the broad ligament, cut away the portion which contained the ovum and quilted the stump with iron-dyed silk.

JOSEPH RILUS EASTMAN, M.D.

License in Germany; American and European Medical Colleges.

CHICAGO, ILL., Jan. 10, 1898.

To the Editor:—I am again forced to reply to Dr. Becker of Toledo, and this time on a different subject. I must therefore apologize for using two headings for this communication.

As far as the laws regulating the practice of medicine in Germany are concerned, I am done and shall waste no more time with them.

But Dr. Becker accuses me of underrating the value of American medical colleges, particularly of Johns Hopkins or Harvard. Now any careful reader, familiar with the most rudimentary principles of English composition, will see that I *never expressed my opinion*, but that I was stating what *legal* value the diplomas of an American medical school has before the German licensing board in Germany.

My opinion puts Johns Hopkins and Harvard even above the average German university. To me Osler is second to none, and Kelly far outshines, as a surgeon, men of even the caliber of a Bergmann, which gentleman, for instance, although one of *the* German surgeons, has won for himself the distinction of carefully neglecting asepsis.

And now to the address of Dr. Becker a few well-meant advices: 1. "Polk's Directory" is a poor weapon to fight with, as it is not a scientific publication. 2. It is not considered good journalism to indulge in personalities. Stick to the subject in consideration, Doctor, and do not argue about a man's shoes and clothing, or his nose; babies only argue in this way. 3. Barnes Medical College is an excellent institution, and has men on the faculty who are far more able to teach than many professors in Zurich. So, for instance, Charles H. Hughes is well known throughout this country and Europe as an authority in neurology, Pinckney French as a most successful scientific and aseptic surgeon, Carpenter as a clinical lecturer of whom it has been justly said, "he is a clinical lecturer even if without clinical material."

Perhaps Dr. Becker will be surprised to learn that his diploma from Zurich is *absolutely valueless* in several States of the Union, as Kentucky, Tennessee, and that in order to practice medicine there he would have first to produce an American diploma. If he ever wished to move there, I would earnestly advise him to enter the graduating class of Barnes Medical College. I believe the faculty of that institution would give him three years credit for his diploma, and I am satisfied that he could yet learn something in that successful college, which in its six years existence had to abandon quarters for more spacious ones, larger than those assigned to the medical department of the University of Zurich.

G. A. BLECH, M.D.

A Simple Method of Preventing the Clouding of Mirrors.

MILWAUKEE, WIS., 1897.

To the Editor:—The *Medical Press and Circular* recently called attention to an ingenious, effective, and at the same time very simple device for preventing the clouding of mirrors used in the work of laryngologists and dentists.

The method was introduced by George Wallis, L. D. S., dental surgeon to the London Throat and Ear Hospital at a recent meeting of the staff.

It consists merely of smearing a thin layer of ordinary soap, soft but not moist, over the surface of the mirror, and afterward polishing the latter with a dry cloth. The effect of this procedure is that however much the mirror may be breathed upon, its reflecting surface remains perfectly clear and bright. When one takes into consideration the extreme simplicity of the procedure and the bothersome difficulties sometimes encountered in preventing the clouding of mirrors used in laryngology and dentistry, the value of this ready method can not be overestimated. It has proved very satisfactory to me, and as I have not yet seen it mentioned in the American journals, I take this opportunity of calling the attention of the profession to it.

Yours very truly,

GILBERT E. SEAMAN, M.D.

Birth Mark?

WAUKEGAN, ILL., Jan. 6, 1898.

To the Editor:—J. F. M. is 13 years old, and is usually in good health. He is myopic and his eyes are elongated antero-posteriorly. The pupils are exactly alike, ellipto-oval in shape, the pointed portion of the pupil being downward like a

snake's eye. The mother thinks the boy is "marked." While she was pregnant, a few months before his birth, she was frightened by a snake and for weeks afterward she fancied she could see that snake's eyes.

Is the boy "marked"?

Respectfully,
J. M. G. CARTER, M.D.

PUBLIC HEALTH.

Reappearance of the Plague in Bombay.—Bombay dispatches of January 6 give the plague returns for the preceding forty-eight hours, 142 new cases and 105 deaths. There is a general exodus of the population and a suspension of business threatened.

Appointments.—Mr. Nathan Straus, of sterilized-milk fame, has been appointed president of the Board of Health of the City of New York, *vice* Mr. Wilson. Dr. Wm. T. Jenkins and Dr. John B. Cosby have been appointed health commissioners. Dr. Jenkins brings to his new office the experience gained as former health officer of the port.

Health in Michigan.—Reports to the State Board of Health for December give the ten diseases most prevalent as: Rheumatism, neuralgia, bronchitis, influenza, tonsillitis, diarrhea, inflammation of kidney, pneumonia, pleuritis and erysipelas. Consumption was reported at 178 places; diphtheria, 85; typhoid fever, 84; scarlet fever, 72; measles, 56, and whooping cough at 20 places, there being an increase in consumption, diphtheria, scarlet fever, measles and whooping cough and a decrease in typhoid fever, as compared to the report for November.

The Pilgrimage to Mecca was accomplished this year in remarkably good sanitary conditions. Notwithstanding the 200,000 pilgrims gathered during the four days of the festival, not a single case of the bubonic plague nor of cholera was discovered, thanks to the action of the Anglo-Indian government in prohibiting the departure of pilgrims from the infected Indian ports. But twenty days after the close of the festival, the bubonic plague appeared at Djeddah, the nearest port to Mecca. Prompt measures in accordance with the program adopted by the International Conference at Venice, and the extreme heat, stamped out the epidemic by July, with a record of only fifty-eight deaths. It was undoubtedly due to the contraband trade in goods and transportation between India and Arabia, which will continue to be a menace to the health of Europe until suppressed by concerted action.—*Janus*, October.

Good Health at Pittsburg, Pa.—The annual report of the Board of Health of Pittsburg, for 1896 has recently been issued. The report shows the number of deaths to have been 4,907 or 17.3 per thousand of population (estimated at 282,500). The death rate is lower than at any time since 1886; and considerably lower than in 1891, when it was 23.6. The number of infants born during the year was 7,462, being an increase of 704 over the previous year. The births exceeded the deaths by 2,555. The Board makes bacteriologic tests in cases of suspected diphtheria and furnishes antitoxin, produced by the bacteriologist of the department, Dr. Matson, free of charge for physicians of Pittsburg, and adjacent districts. The report shows that 1,216 doses of antitoxin serum were distributed last year, 220 of these going outside of Pittsburg. Mr. Matson is of the opinion that the fatal cases of diphtheria were reduced one-half by the use of antitoxin last year. The disposal of garbage is satisfactory. The city has as yet no municipal hospital for contagious diseases. The health officers, as in duty bound, repeat the recommendation made in former years that one be established without delay. Let them not cease the necessary reiteration until they get it, for get it they will and must.

Neglect of Vaccination in Northern London.—The *Lancet* says that if Islington is again overtaken by one of those great epidemics of smallpox which have affected it more than once in the last twenty-seven years it will not be the fault of its indefatigable medical officer of health, Mr. Alfred E. Harris. Mr. Harris has just published some statistics which may well alarm that public of this great parish. These figures show that there has been a steady increase in the neglect of vaccination during the last twelve years, so that, whereas in 1885 of 9,683 children born, only 8 per cent. were finally unaccounted for, in 1896 of 9,752 children born no less than 22.4 per cent. are unaccounted for. Such wholesale violation of law is doubtless the fault of the guardians more than of the inhabitants. It is nothing short of a scandal that a board of guardians should override the wisdom of the legislature. The vestry of Islington has very properly protested against the guardians being in this matter the sanitary authority. One thing, however, is clear, that if at the approaching election of guardians this question is not put into the very front of those on which the election will turn the inhabitants will then become responsible for the unprotected state of the children, and for general treason to the teachings of science and of common observation.

Sanitary Care of Canned Foods.—Dr. T. Brown, at the Sanitary Congress at Leeds, avowed himself to be a strong advocate of legislation in the matter of canned foods. In regard to tinned fruits Dr. Brown said he had not heard of any case which had ended fatally. He had, however, made numerous analyses showing that in cans in which lead was used in tinning or soldering, the former metal was found in the fruits and syrup. How long foods hermetically sealed would keep was not definitely known. Having had canned foods, including meats, soups, rabbits, giblets, and oysters from twenty to thirty years, he had found that the tins, though rusty outside, were perfectly good inside. The meats were sound, though not as fresh and tempting to the eye as recently prepared samples. In canned fruits, however, the effect of age was that the acids of the fruits dissolved, by chemic and galvanic action, the plating and solder with disastrous consequences. To safeguard the public health, Dr. Brown recommended the government to forbid tinned foods in which tin used for plating contained more than 1 per cent. of lead or more than 10 per cent. in solder, the same law in fact which had been in force in Germany since 1889.

Relations between Medical Examiners and local Boards of Health.—Dr. Hurd, medical examiner at Newburyport, Mass., refers to a case of sudden death regarding the disposition of which there happened to arise a clashing of authority, and the courts were called upon to arbitrate between the two authorities. Dr. Hurd thus writes to the *Boston Medical and Surgical Journal*, for December 16, regarding the discrepancy and its settlement: "This is the case where the Board of Health of Ipswich, thinking their rights interfered with by the removal of this body to Newburyport (that is, from one town to an adjoining town) without their permission, and believing that the law defining the functions of boards of health gives such boards authority over medical examiners in such cases, who must apply to these boards for consent before they can legally remove bodies out of one town into another—this board, I say, appealed to Justice Sayward, of Ipswich, who sustained the view of the board, and fined the undertaker who took the body from Grape Island to Newburyport, $10 and costs. An appeal was made to the superior court, and the case was *nolle prossed* by District-Attorney White, so that, according to this judgment, medical examiners are not amenable to boards of health in the discharge of their duties within the limits of their districts."

Sanitary Regulations as to the Plague in South Eastern India.—Plague is increasing in India. It is feared that it will break

out somewhere in an epidemic form, and the necessity for active intervention occur. A recent telegram from Madras, reported: "Three fresh cases, one has terminated fatally." "The appearance of the plague," says the *British Medical Journal*, "at Madras is interesting epidemiologically, as we have no previous record of plague there. The cases, as far as we can learn, are important cases merely and in accordance with what we now know of plague we should not anticipate an outbreak there in an epidemic form. A telegram from Jullundur, a town in the Punjab, states that twenty-three deaths have occurred there 'from what is believed to be the plague.' Jullundur is directly in the track northward from Bombay of the course the plague has followed previously. In the hospitals at Poonah, 294 cases of the plague are being treated, and the physicians are attending 115 cases in Bombay hospitals. Whilst Poonah is relaxing her efforts by as far as possible annulling the severe segregation rules enforced when the plague first appeared, Bombay is strengthening hers by imposing quarantine upon new arrivals. The period of detention will extend to six days, and accommodation will be provided for about 6,000 people. With the quarantine arrangements surveillance tickets are issued, whereby well-known people can avoid the quarantine on the understanding that they present themselves for examination on the third and sixth days after arrival. As well-nigh a third of the cases occurring in Bombay are imported, these regulations have shown excellent results. The inspection is rigid, and no person passed out has been known to have become subsequently attacked."

The Ship Island Quarantine.—The resolution recently introduced in the United States Senate by Senator Walthall of Mississippi, instructing the Committee on Health and Quarantine to investigate by what right the Quarantine Station, which was removed some years ago from Ship Island, off the Mississippi coast to Chandeleur Island, had been returned to Ship Island, will receive general indorsement in this section. The resolution further instructed the committee to report, by bill or otherwise, the proper measure for removing the station from Ship Island to some other point in the Gulf remote from the mainland. This resolution undoubtedly voices the wishes of the people of the whole tier of States bordering on the Gulf of Mexico. Ship Island is not a fit place for a quarantine station, for the reason that it is too close to the mainland, and is in daily communication with all the towns along the coast, because a large amount of traffic goes on constantly between the ships taking in cargo at the island and the mainland; and lastly, because fishermen and pleasure-seekers are frequent visitors to the island. A quarantine so situated can not but be dangerous to the health of the watering places along the Gulf Coast, and through them to the neighboring cities of Mobile and New Orleans. There is a very grave suspicion that the recent visitation of yellow fever came through Ship Island. At any rate, it first made its appearance at Ocean Springs, which is but twelve miles from the island. No matter how strongly the Government officials may claim that the quarantine plant at Ship Island is not dangerous to the health of the people residing on the mainland, it should nevertheless be removed, as it is unwise to take any chances in matters affecting the public health. Moreover, the people of the coast towns firmly believe that the Ship Island Quarantine Station is a menace to them, and its perpetuation would materially retard their prosperity. It was a great error to have re-established it on Ship Island after it had once been removed from there, and Congress should promptly provide for its transfer to some more isolated place. Chandeleur Island is not a pleasant place of residence for the quarantine officials, but that is not to be considered in comparison with the safety of the entire Gulf coast.—Editorial in New Orleans *Picayune*, Dec. 16, 1897.

Inadequate Organization of Boards of Health Disclosed by the Yellow Fever Epidemic.—In proportion as the organization of sanitary boards is made complete and satisfactory, the panicky feeling in our epidemic-struck communities declines. The weak points in State and local boards are emphasized by such outbreaks of yellow fever as have visited our Gulf Coast, this year. A writer in the New Orleans *Medical and Surgical Journal*, November, alludes to the panic that has affected the Louisiana parish in which he lives, adding "and as is usual where there has been extreme fright, there has been almost complete absence of common sense in the exercise of powers conferred by law. Every neighborhood is suspicious of all other places; each municipality has enacted laws to protect itself without due regard to the rights of others, and in most instances very much more stringent than the situation demands. I suppose there are today, in the State of Louisiana alone, over five hundred local boards of health, each a law unto itself, and without the least attempt at uniformity or co-operation for securing protection against the yellow fever. The Board of Health of Louisiana, as at present created, serves an excellent purpose as far as the City of New Orleans is concerned, but in an emergency of this kind is of but little benefit to the State at large. I believe if a general law was passed, excessive and unwise quarantines, such as New Orleans and the entire State are suffering from now, would be impossible in the future. My suggestion is that the State Board of Health be composed, as at present, with the same number of members from the city of New Orleans, and also have a number from each parish in the State and one from each town of certain population. The Board should have its domicile at the State Capitol, and should hold annual meetings for discussing such questions as might come up of interest to the public health; in fact this board should take charge of the public health of the State in its broadest sense. Each member from a parish or town ought to be the regularly appointed health officer for that parish or town and, acting under rules adopted by the State Board, should take charge of all quarantines during an outbreak of any epidemic, or infectious disease. He should at all times look after the health of his parish or town, register births, deaths, etc. If some law of this kind could be passed and all laws repealed giving police juries and corporations power to form themselves into boards of health, I believe the end of shotgun quarantine would be at hand, while the public health would be more thoroughly protected than it is now; the embargo on freight, as far as this State is concerned, would not be necessary. Confidence among the people in a board of health of this kind, I believe, would soon be acquired, and no one would wish to go back to the primitive methods of complete isolation to prevent the spread of disease."—James Kilbourne, Clinton, La.

BOOK NOTICES.

Clinical Text Book of Surgical Diagnosis and Treatment. By J. W. MACDONALD, M.D. Professor of the Practice of Surgery and Clinical Surgery in Hamline University, Minneapolis. 328 illustrations, pp. 798. Philadelphia: W. P. Saunders. From W. T. Keener, Agt. 52 Randolph Street, Chicago. Price in cloth, $5.00, half morocco, $6.00.

This book might, with advantage, be compressed into two-thirds its size as it is verbose in its expressions, and the art of condensation, so far as the author is concerned, is a lost art.

The author's ideas are a little foggy in respect to tumors page 561, "Fibro-myomata and Fibromata." "Between the simple gelatinoid polypus and the true fibroma may be found mixed tumors of all grades, from those containing the slightest trace of fibrous material to those difficult to differentiate from the true fibroid; the gravity of the case varies in proportion to the amount of fibrous substance, because that is very vascular, and the chief danger of removal lies in the hemorrhage."

Page 563: "Adenomata and cysts are to be regarded as modifications of mucous polypi, with similar symptoms and treatment, though the former may take on the characteristics of

carcinoma and the latter do not tend to recur when once their contents are evacuated."

Page 667: "Psammomata are warts found only in the pia mater of the brain and spinal cord."

We notice on page 598, that the old student's lamp is introduced as a means of examining the larynx; in these days of gas and electricity, the student's lamp has not only ceased to shine in most offices but the electric head light has superseded the one here figured.

There are some funny errors in the text. We notice on page 579, in speaking of the deviated septum, he says: "One of the early proposed methods was that of "*Adanus*." Adanus we suppose must be the new way of spelling Adams.

There are some errors of statement; for instance, on page 241 the author says: "In the following table I have tried to place, side by side, the diagnostic difference in the three forms of obstruction;" and then under the first heading, "Strangulation by bands," we find that this is confined to "young males." Our personal experience is entirely contrary to this proposition, as we have repeatedly found these bands in young women, especially in cases that had been subject to former operation, and we believe it will be found, by most surgeons, that there is practically no difference in the relative frequency of strangulation by bands in one sex or the other. There are many good points in the work, which concludes with a chapter on the X-ray and surgical diagnosis.

Hugh Wynne, Free Quaker. Sometime Brevet Lieutenant Colonel on the Staff of his Excellency, General Washington. By S. Weir Mitchell, M.D., LL.D. (Harvard and Edinburgh.) Two volumes. New York: The Century Company. 1897.

From the days of "Ivanhoe," "Thaddeus of Warsaw," and "Leather Stocking" down to the present time, the historic novel has always been a favorite.

This book should be a favorite with physicians on account of the fact that it was written by one of the guild, so well written indeed that it is destined to take rank with the leading favorites of the past, and it seems at last as if the present generation would have, in the person of Dr. Mitchell, an American novelist worthy of the name.

This story is laid in the times of Washington and inside glimpses are given of early Quaker life in Philadelphia, and the names familiar to us in history are handled as familiar contemporary characters. The work ranks well as a novel and the reader's interest does not flag from beginning to end. Moreover, there is a certain charm in reading a story about which one knows, in a general way, the subsequent history of the principal characters of whom he is reading; and if in addition there is knack in telling the story, interest is all the deeper. "Hugh Wynne" is a book to be read with pleasure by American physicians and laymen alike, and most interesting is the account of life in the Philadelphia prison during the British occupancy of the city. Dr. Mitchell has scored another success.

Ambroise Pare and His Times, 1510-1590. By Stephen Paget. New York and London: G. P. Putnam's Sons; Knickerbocker Press. 1897.

The *fin de siècle* seems to be the age of reminiscences in historic matters, and medicine is feeling the effect of this wave of reminiscence. Last week we chronicled the appearance of two works, John Hunter and William Harvey, and here we record the appearance of a story of Ambroise Paré, newly told in English dress. The life of no surgeon has been more romantic, more full of adventure or of excellent professional work than that of Ambroise Paré, and heretofore there has been but little of it in the English except in scattered volumes, and Mr. Paget has placed the profession in his debt by reaccounting the details of his life.

The volume gives his boyhood and early life and his journeys in diverse places; notes of the journeys in diverse places; Paris from 1541 to 1572; Paris from 1573 to 1590; opera omnia; some aspects of Paré's life, and Paré's account of the plague.

There are some fine illustrations which the reader will find of interest, especially the frontispiece, which is a reproduction of a portrait in the possession of Mme. La Marquise Le Charron, a descendant of one of Paré's daughters and which was painted when he was 65 years old, with a *fac-simile* of Paré's signature written across it. The other illustrations in the work are reprints from Paré's books, from old prints in the British Museum and from M. Martial's "Ancien Paris."

A System of Medicine by Many Writers. Edited by Thomas Clifford Allbutt, Professor of Physic in the University of Cambridge, etc. Pages 1001. New York: The MacMillan Company, 66 Fifth Ave. 1897. Price $5.

This volume covers some topics which have not been provided for in the preceding volumes and scarcely provided for in the nomenclature. "General diseases of obscure causation," is the rather unscientific title of one of the chapters, under which head is included discussion on acute rheumatism, chronic muscular rheumatism, rheumatoid arthritis, rickets, acromegaly, hypertrophic pulmonary osteo-arthropathy, gout, diabetes mellitus, diabetes insipidus, lardaceous diseases, diseases of alimentation and secretion, including general pathology of digestion and secretion, shock and collapse; diseases of the mouth and esophagus, diseases of the stomach, diaphragmatic hernia, abdominal diagnosis from the gynecologic standpoint, enteroptosis, diseases of the peritoneum, diseases of the bowels. There are twenty-three illustrations, a plate and various charts and bibliographic references. The volume is quite up to date in its discussions on the treatment recommended. Drs. Church, Cheadle, Archibald Garrod, Kent Spender, Still, Ralfe, Mr. Bowlby, Sir William Roberts, Drs. Saundby, W. L. Dickinson, Fenwick, Bradford, Cobbett, Rollson, Brunton, Stocker, Allbutt, Dreschfeld, White, Howship Dickinson, Leith, Playfair, Mr. Treves, Drs. Allchin, Eustace Smith, Patrick Manson, Willis and Allingham are the contributors to the volume.

Rubaiyat of Doc Sifers. By James Whitcomb Riley. Illustrated by C. M. Relyea. New York: The Century Company. 1897.

This is a poem by James Whitcomb Riley, in which the life of "Doc Sifers," an ideal country doctor, is fully set forth in the dialect of Hooppole Township, Posey County. The Doctor's virtues are set forth in such fashion that one can not but love and esteem the old country practitioner. Riley depicts him, as follows:

"He's jes a child's what Sifers is! And sir I'd ruther see,
That happy, childish face o' his and puore simplicity,
Than any shape, er style er plan o' mortals otherwise——
With perfect faith in God and man a- shining in his eyes."

Mr. Riley makes the rustic worshiper of Doc Sifers speak thus of his library.

"Doc's lib'ry—as he calls it—yes, they's ha'f-a-dozen she'ves,
Jam full o' books—I couldn't tell how many—count yourse'ves!
One whole shef's works on medicine! And most the rest's about
First Settlement, and Indians in here—'fore we driv 'em out."

Text Book of Materia Medica for Nurses. Compiled by Lavina L. Dock, graduate of Bellevue Training School for Nurses. Third Edition, revised and enlarged. New York and London: G. P. Putnam's Sons. 1897.

Much in these days is expected of the trained nurse, and her training includes lectures on surgery and materia medica as well as on the subjects supposed to be within her peculiar province. The contents of the volume are as follows:

Part 1. Inorganic materia medica; the alkalies; of alkaline earth; metals; non-metallic elements; inorganic acids; organic acids; the carbon compounds.

Part 2. The organic materia medica; the vegetable kingdom; the animal kingdom; new drugs arranged alphabetically; appendix; index.

Diseases of the Stomach, their Special Pathology, Diagnosis and Treatment, *with Sections on Anatomy, Physiology, Analysis of Stomach Contents, Dietetics, Surgery of the Stomach, Etc.*: in three parts. By JOHN C. HEMMETER, M.D., PH.D., with many original illustrations, a number of which are in color, and a lithograph frontispiece. Pp. 788. Philadelphia: P. Blakiston, Son & Company. 1897. Price $6.

The work is divided into three parts, of which part first is devoted to the anatomy and physiolgy of the digestive organs, methods and technics of diagnosis; Part 2, to the therapy and materia medica of stomach diseases; Part 3, to the gastric clinic.

The work is completely scientific, modern, accurate and creditable. There is one defect in it, however, which must strike the average reader with regret, and that is that the references are, with exceptions, foreign; work done in our own country escapes with scant mention. For example, under the head of foreign bodies in the stomach, a number of cases of hair ball are recorded all from foreign journals, while the one published in this journal (Vol. xxvi, page 199) by Allen, is unnoticed. Notwithstanding this defect, the book is an excellent one and stands fully abreast with the German works on this subject. We commend it. The illustrations are excellent, the paper is good and the publishers have given the work a handsome setting.

NECROLOGY.

JOSEPH O'DWYER, M.D., College of Physicians and Surgeons, N. Y., 1866, one of the visiting physicians of the New York Foundling Hospital, died of tubercular meningitis at his home in New York city, January 7, aged 55 years. Twelve years ago he achieved even international fame by his intubation method of treating laryngeal diphtheria. He was a progressive, enthusiastic physician, in much favor with the profession for his candid and kindly manner.

EDWARD L. DODGE, M.D., N. Y. University Medical College, 1888, died suddenly from blood poisoning following an operation, January 3, aged 39 years. He was born in Springfield, Mass., and practiced in Brooklyn, N. Y. for 12 years. Just before his death he had secured a position on the eligible list of Police Surgeons.

FRANZ HEUEL, M.D., N. Y. Medical College (now extinct), 1857, who belonged to the German revolutionary army of 1848, and emigrated to this country after its defeat, died in New York city, January 4. He was once attached to the Health Department, and also served as a Dispensary physician. He leaves two sons who are also members of the profession.

SAMUEL HENDERSON MCILROY, M.D., Long Island College Hospital, 1864, was a war veteran, member of the Grand Army of the Republic, a Fellow of the N. Y. State Medical and AMERICAN MEDICAL ASSOCIATION, and belonged to many fraternal bodies. He was born, June 21, 1839, in Scotland, Pennsylvania, not far from the Gettysburg battle field. He was a popular, well-read physician, and up to within a year of his death, when his health failed, he enjoyed a lucrative practice. He died January 5 and left a widow with three children.

ERNEST HART, Editor of the *British Medical Journal*. Mr. Hart was the author of a number of works on sanitation, etc., and had been conspicuous for his devotion to social and sanitary progress in London. He established a society for the abatement of smoke, and instituted cheap concerts for the poor. As chairman of the Parliamentary Bills Committee of the British Medical Association he took an active part in promoting a better organization of the medical departments of the British army and navy. Among sanitary investigations he especially inquired into the various epidemics due to the pollution of milk and devised a series of regulations for safeguarding the milk supply of towns. After investigating the conditions of the Irish peasantry in Galway, Donegal, and Mayo he published in the *Fortnightly Review* proposals for favoring the creation of a peasant proprietary and for reclaiming waste lands. These were adopted by the government.

WILLIAM SCOTT TREMAINE, M.D., U. S. A., retired, died Sunday Jan. 9. He had been ill for several weeks. He was a native of Charlottetown, Prince Edward Island, where he was born Sept. 13, 1838. He was graduated from the University of Pennsylvania, and entered on the practice of medicine, which he followed until Aug. 7, 1863, when he entered the volunteer service as assistant surgeon of the 24th Massachusetts Infantry, serving until April 12, 1864, when he was honorably mustered out. On May 2 he was commissioned surgeon of the 31st United States Infantry, from which he resigned Sept. 9. He then entered the United States Volunteers as assistant surgeon and on June 4, 1866, was honorably mustered out, having been appointed to a like position in the regular army. This appointment was made Feb. 28, 1866, but he did not accept until June 12, eight days after he was mustered out of the volunteer service. On September 16, he was promoted to the rank of Captain. He served on several stations in the Atlantic division, and then was sent to Ft. Dodge. While there he was taken ill, and for two years was absent on sick-leave. In 1882 he was promoted to surgeon, with the rank of Major, and detailed for active duty at Fort Porter. On Feb. 27, 1891, he was retired owing to disability, after having been on sick-leave for some time. He leaves a widow and six children, Morris Tremaine of New York city, William Tremaine of Chicago, Mrs. H. F. Hall of Jersey City, Mrs. Nairn Walsh and Miss Florence Tremaine of Pittsburg, and Miss Grace Tremaine, who lived with her parents in this city. Dr. Tremaine was one of the founders of the Medical Department of Niagara University, and one of its first professors of surgery. He was a member of the military order of the Loyal Legion, which is composed of commissioned officers of the Civil War, or their eldest sons; of the Masonic Order, of the Buffalo Club and the local medical societies.

Louis Crusius, M.D., Professor of Histology at the Marion-Sims Medical College, January 2, aged 36 years.——L. B. Lindsay, M.D., Cadiz, Kentucky, January 3, aged 71 years.——W. H. Negley, M.D., Dayton, Ohio, January 5.——James Stanton, M.D., San Francisco, Cal., December 28.——Dr. Zaccharin, physician of Czar Alexander III., Moscow, Russia.——John R. Preston, M.D., born February 15, 1809, died in Schuylerville, N. Y., January 2.

NEW INSTRUMENTS.

A NEW PHOROMETER.

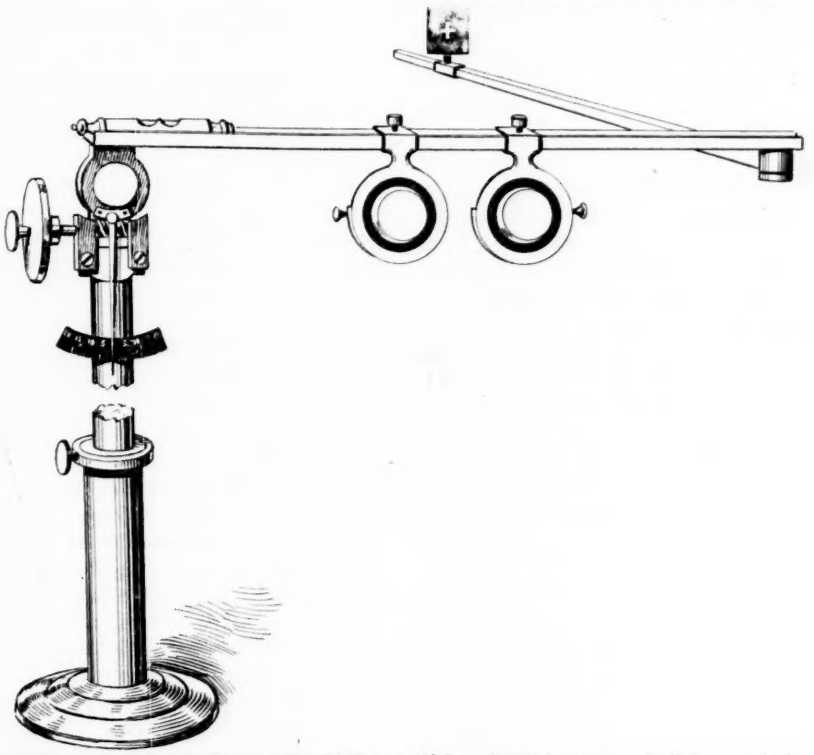
BY JOHN O. MCREYNOLDS, B.SC., M.D.
DALLAS, TEXAS.

In the department of ophthalmology no line of research in recent years has attracted so much attention as that pertaining to the extrinsic muscles of the eye. And in view of this rapidly growing importance of an accurate knowledge of the various anomalies of the ocular muscles, it becomes necessary to employ as aids in diagnosis instruments of the greatest precision and convenient of manipulation. This demand has been met in part by several devices invented for this purpose, but some of the best of these in frequent use have covered only a portion of the field of inquiry. Without offering any extended criticism on the very excellent instruments already introduced, I should like to present to the profession a phorometer, which in my judgment will combine every essential feature that could with reason be desired.

This instrument has been made for me by F. A. Hardy & Co. of Chicago, and their kind co-operation I wish sincerely to acknowledge in this connection.

The construction is roughly outlined in the illustration which accompanies the following brief description of the essential

features of the phorometer. The instrument rests upon a loaded metal base which can be placed upon a table as conveniently as if it were an ordinary lamp. It is supported by a vertical metal rod composed of two pieces, one of which slides within the other, and is provided with a fixation thumb screw, by means of which the height of the instrument can be regulated according to the height of the patient to be examined. Attached to the upper extremity of this supporting rod is a horizontal metal bar, which can be maintained in correct position by means of an endless screw bearing upon a cogged wheel, the position of the bar being determined by a spirit level, with which it is provided. The preservation of this horizontal position is important, because any oblique position would modify the axes of the prisms employed. The horizontal bar is grooved, for the reception of two entirely similar slides which are situated beneath the bar, and along which they can be made to move freely, or can be firmly secured at any point by fixation thumb-screws arranged for this purpose. This feature enables us to regulate the phorometer according to the pupillary distance of the patient. Each slide is also provided with a specially constructed spring clip, which will hold in position a Maddox rod double prisms, colored and stenopeic discs, or various refracting lenses.



But most important of all, each slide carries a cell which can be made to revolve freely within the slide which contains it, or can be fixed in any desired position by a set-screw. The advantage of this fact is that the prismatic effect of the cell may be exerted in any direction whatever, and this direction is indicated by the graduated circumference of the slide.

Each cell is composed of two prisms of 15 degrees each, superimposed one upon the other, the two prisms possessing the power of revolving with equal rapidity, but always in exactly opposite directions, the motion being communicated to them by a thumb-screw whose distal end is provided with cogs articulating with the circumferences of the prisms between which it is placed. Since the two prisms always move simultaneously and with equal rapidity and in opposite directions there are two points in each complete revolution of the prisms at which they completely neutralize each other, and these points, which are situated at opposite extremities of a diameter, are marked 0 upon the graduated circumference of the cell.

Now it is evident, that starting at a point at which the two prisms neutralize each other, a revolution through an arc of 90 degrees will cause the bases of the prisms to exactly coincide and their apices to correspond, thus giving a total prismatic effect of 30 degrees, equal to that of the two prisms combined. This point is accordingly marked 30 degrees on the circumference of the cell, and is situated just 90 degrees from the points marked 0 degrees. It is also evident that at 180 degrees from the point just marked 30 degrees there will obtain the identical relations of the prisms to each other, and this point should accordingly be marked 30 degrees. Then the intermediate points in each quadrant between points marked 0 degrees and 30 degrees can be easily determined by calculation or neutralization by prisms of known strength, and thus the graduation of the circumference of the cell is completed. The cell as thus arranged is capable of manifesting in a rectilinear direction a prismatic effect varying by insensible gradations from 0 degrees to 30 degrees. The cell in the other slide is capable of accomplishing the identical result, and hence with the complete phorometer we can secure any amount of prismatic power from 0 degrees to 60 degrees. Not only this, but since each cell is freely movable within the slide which contains it, we can at will determine the direction in which this prismatic power shall be exerted.

The important feature in the effect of two equal and superimposed prisms revolving in contrary directions within the same cell, is that the image transmitted through them is always deflected in a straight line and not in curves, and that the increments of prismatic power are infinitesimal, so that the maximum impulse to fusion of images is secured.

For the practical application of this instrument to the various forms of heterophoria, the procedure would be briefly as follows:

To test for esophoria and exophoria; so adjust one cell that it will produce a vertical diplopia. Then so adjust the other cell that it shall be neutral, and in such a position that subsequent rotation of its prisms will produce horizontal deflection. Then if the images are in the same vertical line the examination shows orthophoria, and if the images are not in the same vertical line rotate the prisms, producing lateral deviation, until the images pass through the same vertical line and the index

of the instrument will point out the number of degrees of esorphoria or exophoria, according to the circumstances of the case.

To test for hyperphoria, right or left, start with the cells in the same positions as above, then rotate the prisms of cell producing lateral deflection until horizontal diplopia is produced, and then rotate prisms of cell producing vertical deviation until the images appear in the same horizontal line, and read off the hyperphoria upon the graduated arc of the cell.

For measuring abduction, start with the same positions as above and rotate prisms of cell causing lateral deflection so that their bases pass inward, and as soon as fusion of images is no longer possible the limit of abduction is reached and can be read from the arc.

For measuring adduction, adjust both cells so that the subsequent rotation of prisms will cause horizontal deflection of images and then rotate the prisms so that their bases turn outward and continue until diplopia develops and then read the degrees from the two cells, and the sum will represent the total power of adduction.

For testing sursum-duction and deorsum-duction, place both cells in neutral position, one of which must have the axes of its prisms horizontal, and then rotate these prisms until the power of fusing the images is lost, and read from the arc the degrees of sursum-duction, or deorsum-duction, as the case may be.

Finally, for any kind of oblique, horizontal or vertical rectilinear deviation leading to diplopia, adjust the neutralized cells so that their prismatic power when exerted shall be in the direction favoring the fusion of images, and when monocular vision follows the phorometer will indicate the strength and position of the prisms which measure the heterotropia. These possibilities are true whether the deviation is due to spasm, or paresis, or paralysis of one or more ocular muscles, provided the extent of the deviation does not exceed 60 degrees, which is the maximum capacity of the instrument described. But if it is desired the strength of the component prisms could be readily increased so as to extend still further the field of investigation.

In conclusion I would say, that with this phorometer we can measure with rapidity and accuracy any form of simple or compound heterophoria and any form of diplopia within the combined power of the prisms employed.

SOCIETY NEWS.

Boston Medical Society.—At a meeting of the Boston Medical Society held on Jan. 1, 1898, the following officers were elected for the ensuing term: Dr. S. Goodman, president; Dr. R. K. Noyes, first vice-president; Dr. F. J. Kelleher, second vice-president; Dr. M. Gerstein, secretary; Dr. V. Bychower, treasurer; Drs. N. M. Goodman, Chas. F. Parker, A. Rovinsky, H. P. Leonard, J. J. Hanley, B. L. Bernard, directors. The subject for discussion was "Medical Abuses in the Hospitals and Dispensaries, Their Causes and Remedies for the Same." The following took part in the discussion: S. Goodman, F. F. Whittier, N. M. Goodman, F. J. Kelleher, Gustavus Liebman, Ph. Losnowsky and A. Rovinsky. Papers on the subject were read by Drs. R. K. Noyes, Chas. F. Parker, M. Gerstein, the latter dwelling on the abuses in the lying-in-hospital out-patient department.

MISCELLANY.

The Russian Kvas as a Substitute for Beer.—Dr. Karl Frankel has suggested the Russian drink kvas as a substitute for beer, which so many of the members of the congress at Moscow, though tasting it for the first time, found so pleasant and refreshing. During the hot days at Moscow nothing seemed more palatable than this simple fermented liquor, which is not unlike our own popular root beer. Kvas contains scarcely 0.5 per cent. of alcohol, and most Americans who attended the congress would agree with Dr. Frankel that it would form an excellent substitute for beer during the heated term when the desire to consume a good deal of liquid is almost irresistible. —Correspondent of the *Medical News*.

Can Not Testify to Own Insanity.—For the purpose of avoiding the legal consequences which would naturally follow from joining in the erection of a division fence, the plaintiff, in the case of O'Connell against Beecher, was permitted to testify that in 1883 he fell from a building, and was severely injured. This, the fourth appellate division of the supreme court of New York holds, October, 1897, was competent. But he was further permitted to testify that for eight or nine years thereafter his mind was not right. That this latter testimony was not stricken out, on objection, the court pronounces reversible error, on the ground that the witness was not an expert, and was not competent to give an opinion upon this question. It would establish a dangerous rule, the court goes on to say, to hold that a party to a contract or a transaction is competent to testify that he was not of sound mind at the time of the transaction, or at the date of the contract.

Naval Hospital Corps Proposed.—Secretary Long has sent to the House Naval Committee a draft of a bill "to organize a hospital corps of the United States Navy, to define its duties and regulate its pay." The Secretary says it is understood that the operations of the Army Hospital Corps are satisfactory, and that a similar organization in the Navy can be established and maintained with practically no additional expense. The corps, as proposed, is to consist of twenty pharmacists at $75 per month and five at $100; sixty-five hospital stewards at $60; thirty first-class hospital apprentices at $24; sixty hospital apprentices at $18. The proposed naval hospitals are to be located at Portsmouth, N. H.; Chelsea, Mass.; Newport, R. I.; New York City, Philadelphia, Washington, Norfolk, Va.; Pensacola, Fla.; Mare Island, Cal., and Yokohama, Japan. The scheme includes navy yards and flagships.

Suggestive Statistics.—New York, or since the opening of the year, more correctly Borough of Manhattan, New York City, has one ward, the tenth, with a population of 413,000 to the square mile and a voting strength of nearly the unit. The population of the Whitechapel district of London is 393,000 to the square mile. New York consumes daily 25,000,000 more gallons of water than does London; the former city has a birth every nine minutes and a death every ten and a half minutes, while the latter city has a birth every three minutes and a death every five minutes. In London one out of every sixteen inhabitants seeks relief through public charity, while similar aid is sought in New York by one out of each two hundred. London has a police force of 16,000 while New York has to depend upon not quite half that number, but in London the population moves more like a procession than in New York and much more alertness is required in the management of its street traffic, with perhaps a greater respect for the rights of the individual. Still, New York arrogates to itself the finest constabulary of the world. Travelers agree that both these great communities display the racial stoicism of the Teuton even in their crimes, without the leaven of gayety in their sports so apparent in Paris. The struggle for existence in all three of these dense communities has nearly obliterated the Spartan simplicity of the home and has focused their wealth in divers enterprises. The whole three at the present time are trying to refract their accumulations over the diminished areas of a more compact aggregation of living masses. In other words, the moneyless are in a state of siege, with the watchword that the world owes them a living. Sanitation may make life more tolerable, but can scarcely be expected to enter too deeply into moving causes.

Retirement of Dr. Julius Kohl.—At the annual meeting of the Illinois State Board of Health held at Springfield, Ill., Jan. 4, 1898, the following was adopted relative to Dr. Julius Kohl, whose time on the Board had just expired:

WHEREAS, The term of service of Dr. Julius Kohl as member of the Illinois State Board of Health having expired by limitation, we, his late associates, take the occasion of his retiring to express our regard for his ability, professional probity and sterling manliness. Honest, sincere, discreet, fearless in the discharge of every duty, Dr. Kohl won our respect and esteem while with us, and at parting, carries with him our solicitude for his welfare, our best wishes for his happiness.

Hereditary Insanity as a Defense.—In the murder case of State vs. Van Tassel, the defendant's father testified to the insanity of a brother, an uncle of the defendant. Was this single circumstance admissible in evidence? The supreme court of Iowa holds that it was not (October, 1897). It says that when there is evidence of a want of motive, or other evidence furnishing a basis for inquiry as to the insanity of the accused at the time of committing the criminal act, evidence of hereditary insanity may be introduced. But mere proof of insanity in a parent will not be sufficient to constitute a defense if the other evidence negatives the presence of insanity in the accused. Proof of hereditary insanity is admitted as cumulative evidence, and insanity of ancestors is of itself no defense. The reason for this, undoubtedly, continues the court, is that the burden is upon the defendant to establish this defense by a preponderance of the evidence. And proof of an isolated case of insanity in the family, especially that of a remote relative, will not of itself overcome the presumption of sanity.

Intratracheal Medication.—Dr. J. A. Thompson's article in the JOURNAL of June 26 has received the compliment of editorial discussion in the London *Lancet* for September 4. The writer in that discussion may be said to be in agreement with the American physician, but has doubts whether or not the localization of treatment along the respiratory tract can be extended beyond dilated bronchi. It may be expected that if a large tuberculous cavity communicates with a bronchus it is possible that a tracheal injection of guaiacol might prove beneficial; but that the drug acts locally on the lung tissue itself, especially at the apices, has by no means been proved. The *Lancet* article also remarks that medicines administered by tracheal injection are not changed by passing through the digestive organs into unknown compounds, and for this reason we can be more certain of their action. "No one would think of treating a tuberculous laryngitis by internal medication alone. There is just as much reason for applying medicines of known beneficial local action directly to the lungs as there is for using them in the larynx." (Quotation from Dr. Thompson.) The weak point of this suggestion is that we can not get at the diseased portions of the lungs as we can at the larynx, but at the same time if guaiacol has a local action on tuberculous deposits, if the injection is well tolerated, inspiratory efforts may carry the drug some little distance into the lung and some of it may be absorbed by the parenchyma of the lung, and so the desired effect be produced. Guaiacol and similar preparations frequently produce ill effects when taken by the mouth, and have to be discontinued; so also various expectorants, such as are used in acute and subacute catarrhal diseases, act injuriously on the stomach and intestine. The name of one class, nauseating expectorants, testifies to the universal recognition of this fact. The diseases most suitable to this form of treatment, according to the writer, are pulmonary tuberculosis, pulmonary syphilis, chronic bronchitis, inflammation of the trachea, asthma and bronchiectasis. Tracheal injections have been most extensively tried in pulmonary tuberculosis and with varying success by different observers. The writer appears to endorse the opinion of the American physician when advocating his method in chronic bronchitis. He believes there is no comparison between the two methods of treatment. The results are so much more rapid and satisfactory by intratracheal medication that no patient who has once been given this treatment is ever willing to continue internal medication. The method will doubtless be given an extended trial, and the experiences of other physicians will be awaited with interest.

Surgery of the Lungs.—The more accurate diagnosis which is now possible with radiography, more general recognition of the tolerance of the lungs and improved technique are leading to more frequent intervention, Tuffier remarked in his address at Moscow on this subject. Most of the 306 operations on record have been performed for gangrene. The immediate result is the disappearance of the putrid expectoration and of the fever. Much depends upon a soft, well-adjusted drain. The following remarkable results have been attained: Thirty-nine recoveries in fifty-five metapneumonic gangrenes; one in four cases of gangrene with ectasia of the bronchi; two recoveries in seven cases of embolism; one in one from a gunshot wound. In forty-nine cases of abscess of the lung, probably mostly encapsulated intralobular suppurating pleuritis, 23. per cent. succumbed to the pneumotomy. Three cases of incipient tuberculous foci were cured, but the operation in cavities was followed by death in thirteen out of twenty-six cases operated. The opened cavities rarely cicatrized and only one or two were improved. Intraparenchymatous injections in tuberculosis also proved ineffectual. No primary neoplasms have yet been operated, but seven cases are on record in which a sarcoma had extended to the wall over the lung and been operated. For these difficult operations he resorts to tracheal insufflation with respiration by pressure through a tamponed canula introduced into the larynx. He rejects puncture in hydatid cysts as unreliable and dangerous, from possible perforation of the bronchi. There are twenty-nine operations for aseptic lesions on record (twenty-two recovered, 75.8 per cent.; and seven died, 24.1 per cent). This includes traumatic lesions, hernia, neoplasms and tuberculous nodules. Sixty-one operations were performed for hydatid cysts (fifty-five recoveries and six deaths). The remaining 215 were performed for septic lesions (140 recovered, 64.8 per cent.; 75 died, 35.2 per cent.). This includes tuberculous cavities, 36, 16 deaths; abscesses, 49, 12 deaths; bronchiectasia, 45, 13 deaths; foreign bodies, 11, 4 deaths; gangrene, 74, 30 deaths; actinomycosis, 1, no death. Total 306; cured, 217; died, 88. Sapiejko stated that he locates adhesions with an exploratory needle connected with a manometer; when the point of the needle projects into an open space the manometer is lowered, while it remains stationary if the needle encounters adhesions. Doyen urges the utmost possible haste in suturing the pleura. He exhibited a laryngeal canula with bulb to produce strong artificial respiration in asphyxia. D'Antona recommends provoking coughing, compressing the sound lung at the same time, which causes the diseased lung to bulge out through the wound and prevents pneumothorax.

Lowell Institute Lectures, 1897.—One of the Lowell lectureships was this year held by Prof. Michael Foster of Cambridge University, who is to consider a subject of unusual interest to our profession. "Some Features of Brain Work" were presented by this well-known English physiologist in a course of six lectures, beginning October 18. From the brief summary printed on the tickets, as well as from the success of the opening lecture, it is evident that the physiology of the nervous system in its unity as well as its complexity, as revealed by modern research, is to be sketched by a master hand. Professor Foster requires no introduction to those members of the medical profession who have obtained their medical education within twenty years. In his text-book, published for the first time in 1877, the advanced student and the original investigator found not a collection of isolated and often conflicting statements, but a logical and careful presentation of evidence, with wise suggestions as to the direction in which truth was to be sought in those fields where investigations had yielded only uncertain results. In its successive editions the work has kept pace with the advance of physiology, and its author has shown us how in physiology, as in other sciences, the "solid nucleus of acquired truth year by year grows larger at the expense of its envelope or zone of strife where truth and error mingle in conflict." Professor Foster began his career as a physiologist in 1867, as lecturer on practical physiology in University College, London. In 1869 he was appointed professor in the same institution. In 1870 he became prelector in physiology at Trinity College, Cambridge, and in 1883 was appointed first professor of physiology in the University of Cambridge. Since 1881 he has held the position of secretary of the Royal Society, and in this capacity has exerted a strong influence upon the develop-

ment of science in England. He took a prominent part in the deliberations of the International Congress of 1896, in which it was decided that, beginning with the year 1900, a card catalogue of the scientific literature of the world shall be published under the auspices of the Royal Society, and when this great undertaking shall be inaugurated the result will be largely due to the energy and sagacity of Michael Foster.—*Boston Medical and Surgical Journal.*

Successful Evacuation of Hydatid Cysts of the Liver.—Cheney (*Archives of Pediatrics*, Vol. xiv, No. 11, p. 851) has reported the case of an Italian boy, 7 years old, who came under observation with vague symptoms: Occasional pain in the right side, headache now and then but not constantly, and during the previous week several vomiting spells. His appetite was reported to be fair. He slept well at night and his bowels moved regularly each day, but his mother had noticed a swelling in the right side, about two years before, which had never disappeared, but had rather grown larger. The child appeared healthy, although his body and limbs were moderately emaciated. No icteric hue could be detected about the skin or conjunctivæ. The tongue was heavily coated with a yellowish fur. On inspection a swelling was plainly visible in the region of the liver, and on palpation it was found to extend downward as far as the level of the anterior superior iliac spine, and inward to the median line. The swelling was evidently somewhat tender to the touch. Its outline was smooth, not nodular, and its consistence hard throughout most of the extent, but in one part, about three inches below the border of the rib, the swelling was distinctly fluctuating. Running across the right side of the abdomen, just below the border of the ribs, there was appreciable to touch and sight a sulcus or groove, apparently separating the mass below from the liver above. The lower border of the tumor was sharp and distinct, and the examining fingers could easily be inserted beneath it, and it descended on deep inspiration. On percussion there was dulness over the area of swelling directly continuous with the liver-dulness above, but not extending to the lower edge of the tumor as determined by palpation. In a zone about two inches in width over the lowest portion of the tumor the percussion note was tympanitic. The dulness extended to the median line internally and to the axillary line externally. Directly back of the axillary line and posteriorly toward the spine the percussion note was tympanitic, the dulness not extending in that region below the normal liver-dulness. Heart, lungs and urinary secretion were normal. Fluoroscopic examination showed distinctly the upper rounded border of the liver rising and falling with each respiration, but it failed to give any idea of the relation of the parts below the level of the ribs and, therefore, left the character of the tumor in doubt. As a final resort puncture with a hypodermic needle was made at the point where fluctuation had been found, and fluid was obtained which was turbid and looked like thin pus. Under the microscope it showed many pus cells, but no echinococcus hooklets. The diagnosis lay between malignant disease, abscess, or hydatid disease of the liver and sarcoma of the kidney or pyonephrosis. To remove the doubt an abdominal incision was made, when it was at once seen that the tumor involved the substance of the liver. From the superficial appearances it was thought to be an abscess of the liver and this organ was accordingly stitched to the edges of the incision, the wound packed with gauze and the boy put back in bed to await the formation of adhesions before opening the abscess. On incising the tumor three days later, thin turbid fluid escaped, together with numerous transparent glistening cysts the size of grapes. The cavity was washed out and the wall of the mother cyst removed. The latter when distended must have measured between four and six inches in diameter. After its removal the liver still seemed to be too large, so that a long hypodermic needle was passed from the cyst cavity upward into the liver beneath the ribs and with this there was withdrawn perfectly clear transparent fluid. An incision was then made in the track of the needle and another cyst, equally as large as the first, was evacuated of its contents of fluid and daughter cysts. Drainage tubes were inserted, the wound dressed and the boy put back to bed. He recovered slowly but without complication.

Societies.

The following meetings are noted:

Alabama.—Madison County Medical Society, Huntsville, January 3.

Illinois.—Chicago Medical Society, January 12, Chicago. Pathological Society, January 10.

Indiana.—Vigo Medical Society, Terre Haute, January 6.

Iowa.—Clinton County Medical Society, Clinton, January 4.

Michigan.—Academy of Medicine, Kalamazoo, January 4.

Missouri.—Annual meeting of the St. Louis Academy of Medical and Surgical Sciences, January 4.

New York.—Medical Society of the County of New York, New York City, December 27.

Ohio.—Guernsey County Medical Society, Cambridge, January 4; Marion County Medical Society, Marion, January 4.

Texas.—Central Texas Medical Association, Hillsboro, January 11 and 12; Corsicana Medical Society, Corsicana, December 26.

Louisville.

GOVERNOR'S MESSAGE.—The message of the Governor to the assembled legislature contains many valuable suggestions which are of interest to the profession. Among many may be mentioned:

Charitable Institutions.—The report of all the Asylums for Insane shows an average decrease in expenditure per capita of $11.35, which in the main is due to the reduction of the salaries of many of the officers. The Central Asylum has saved $10,000 from the appropriation and an ice-plant will be erected which will furnish ice for the institution and by its sale in an adjoining town realize sufficient to pay the running expenses. The Blind Asylum through its excellent management has saved $17,000, which is being used in the construction of additional buildings providing a hospital for the inmates, and remodeling the old building. The Deaf and Dumb Institute is recommended to have its appropriation increased as it has labored under the disadvantage of want of room. An appropriation is asked for the providing of adequate sewerage at the Central and Eastern Asylums.

Houses of Reform.—It is urged that the appropriation necessary for the erection of this institution be provided at once, and that one additional commissioner be appointed as the Board, as at present constituted, is often evenly divided and much important work thus hindered. The appointment of an additional Commissioner would obviate this.

Board of Health.—Attention is called to the fact that there is no State in the Union in which the appropriation is so small for the purposes of this Board as in Kentucky, and that there is none where the Board renders more efficient service. He concludes his reference to the Board of Health as follows: "The operations of the Board in preventing the spread of yellow fever and the prevention of the shipment of diseased cattle into this State is worthy of especial commendation. By their persistent and intelligent action the advertising quack has been driven from the State, on account of which the people have reason to congratulate themselves."

PROFESSOR LAPLACE, of Philadelphia, was the guest of honor at the meeting of the Medico-Chirurgical Society, held on the evening of the 7th inst., the Society being entertained by Dr. Wm. L. Rodman. Because of the social feature of the evening, there was no essay presented, but in lieu of that Dr. Rodman presented several very interesting and instructive cases, chief among which was the patient a picture of whom is to be found in the "System of Surgery," by Park, of multiple enchondromata. The patient was to be operated on the next day, it being necessary for him to sustain an amputation of the right arm, on account of a sarcoma involving the elbow-joint. The Society was entertained by Prof. Laplace in a discussion of this case. At the conclusion of the meeting the following gentlemen met around the banquet board, at the Pendennis Club: Drs. W. L. Rodman; Ernest Laplace of Philadelphia; Johnson of Bowling Green, Ky.; Carl Weidner, Wm. V. Laws, T. H. Baker, Henry Orendorf, George W. Griffith, Jno. G. Cecil, J. A. Larrabee, M. F. Coomes, W. O. Roberts, H. A. Cottell, W. E. Grant, S. E. Woody, J. W. Irwin, Jos. M. Mathews, Louis Frank, A. M. Cartledge, I. N. Bloom, W. H. Wathen, Fouche Samuel, T. S. Bullock, Ap Morgan Vance, H. H. Grant, J. M. Ray, J. E. Hays, Wm. Cheatham, T. H. Stucky, Frank Wilson, Jno. Williams, T. C. Evans, S. G. Dabney, Henry E. Tuley, and Dr. Wm. Bailey, who acted as toast-master. The following toasts were responded to: "The Medico Chirugical Society" by Dr. John A. Larrabee; "The Medico-Chirurgical College," Prof. Laplace: "The Clinical Society" by Dr. I. N. Bloom; "The Surgical Society" by Dr. Lewis S. McMurtry; "The Commonwealth and the State Board of Health" by Jos. M. Mathews, and "Reminiscences" by Dr. H. A. Cottell.

Dr. Long.—It is announced that the Governor has accepted the resignation of Dr. J. P. Huff, for some time Superintendent of the Feeble Minded Institute and has appointed in his stead Dr. Jno. L. Long, formerly of this city, but of late First Assistant Physician at the Central Kentucky Asylum for the Insane. There will be a promotion among the assistant physicians and the position of third assistant has been offered Dr. Louise Bergman, and has been accepted. This is the first opportunity that the woman in medicine has had for showing what she is worth in the minds of the profession of the State and the community.

Philadelphia.

Death Rate—The total number of deaths in Philadelphia during last year was 22,735; the mortality ratio being 18.72 per 1,000 living; the smallest death rate in this city since 1879, when the ratio was 17.37. The highest ratio during the last ten years was 22.25, in 1892.

Prevalent Diseases in 1897.—During 1897 the deaths from some of the principal causes were assigned in the Registrar's Report as follows: Consumption of the lungs, 2,388; inflammation of the lungs, 2,723; diseases of the heart, 1,297; cholera infantum, 852; marasmus, 765; inanition, 523; convulsions, 670; teething, 90; apoplexy, 798; cancer, 688; tumor, 118; typhoid fever, 401; uremia, 343; diphtheria, 1,231, and membranous croup, 243. In addition to the above there were 22 deaths from sunstroke, 143 from suicide and 814 from old age.

Diphtheria.—There has been, during the last three or four months, an epidemic of diphtheria of moderate severity, affecting principally Germantown, which is one of the choice resident wards of the city, and which being on elevated ground and well drained is usually regarded as one of the healthiest. All the usual measures and some extraordinary precautions were taken. Nevertheless, the cases continued to increase until it was found advisable to close the neighboring schools temporarily. An attempt was made by the physicians of the health board to make a systematic inspection of the throats of all the pupils before admitting them to the class rooms, each morning, but after a brief experience it was found to be impracticable and was abandoned. Indeed, some of the pupils positively declined to permit the physical examination of their throats to be made and when they were refused admission to the schoolroom the parents, in one or two instances, sent them back with threats of legal proceedings, including injunctions and mandamuses, which complicated matters so much that the directors concluded to send all the children home and to have the infected schools thoroughly cleansed. The number of deaths from diphtheria in 1896 was 862; 1897 it was 1,231 exclusive the 243 deaths returned as membranous croup. It is probable that the antitoxin treatment has been used more extensively in this epidemic than in any which preceded it and from the experience obtained in such a large series of cases it is hoped that valuable deductions will soon be made in contributions to our medical journals and medical societies. The marked increase of the fatal cases of diphtheria over the preceding year of 369 deaths does not warrant an unfavorable verdict in the absence of other data, although if it had been the other way it might have been claimed by enthusiastic advocates as a triumph for antitoxin (*vide* report of the New York Board of Health for 1895). The mortality rate under this treatment will be given later when the entire number of patients treated by this agent has been made known and its value may then be more definitely settled. There was also an increase of 221 in the number of deaths from scarlatina last year over that of the preceding year.

Hygienic School Regulations.—The Committee on Hygiene of the Board of Education considered favorably the suggestions contained in a communication from the City Board of Health and recommended their adoption: 1. That individual drinking cups be provided for each of the pupils. 2. That passing of pencils from one pupil to another be prohibited. 3. That schools in infected districts be scrubbed once a week and floors and walls washed with carbolic acid solution. 4. That children having symptoms of illness be promptly sent home to remain until well. 5. That wall decorations of plants and shrubbery be not allowed to remain on the walls of class rooms longer than between sweepings.

College of Physicians.—At the annual election January 5, Dr. John Ashhurst, Jr., was elected president of the College; Dr. William W. Keen, vice-president and Dr. Thomas R. Neilson, secretary. Dr. M. B. Hartzell read a paper entitled "Infectious Multiple Gangrene of the Skin, Report of a Case with Illustrations." Dr. John B. Deaver read a communication on "The Necessity for Prompt Surgical Interference in Typhoid Perforation and Appendicitis Complicating Typhoid Fever with Report of Cases" The discussion was opened by Dr. James C. Wilson.

Presentation of a Portrait of the Late Dr. Thomas S. Kirkbride.—At the same meeting of the College, there occurred the impressive ceremony, the unveiling of a portrait of Dr. Thomas Story Kirkbride, M.D., LL.D., who had been a Fellow of the College from 1839 until he died in 1883. The painting which is life size and an admirable likeness, was presented on behalf of the family of the late medical superintendent of the Pennsylvania Hospital for the Insane, by Dr. John B. Chapin, who is the successor in that office of Dr. Kirkbride. The president of the College, Dr. J. M. DaCosta, in a few words acknowledged the gift and returned the thanks of the College to the donors.

The Anatomical Board and the Colleges.—The trustees of the University of Pennsylvania, by Charles C. Harrison, the Provost of the institution, filed a bond in court in the sum of $1,000, given to the Commonwealth of Pennsylvania for the faithful performance of their duties under the Act of Assembly relating to the use of unclaimed human bodies. It is said that the State Anatomical Board are investigating the fulfillment of the provisions of the act among the various medical colleges in this city, and will require all of them to file a bond similar to that of the University of Pennsylvania. The trustees of the University are bound as follows: "The condition of this obligation is such that if the above bounded obligators do well and truly comply with the terms and provisions of an Act of Assembly approved the 13th of June, 1883, entitled 'An act for the promotion of medical science by the distribution of unclaimed human bodies for scientific purposes through a board created for that purpose, and to prevent the unauthorized uses and traffic in human bodies,' and shall only use human bodies received by them under the terms and provisions of the said Act of Assembly for the promotion of medical science within this State, then this obligation will be void, otherwise to remain in full force and virtue."

Medico-Chirurgical College.—Dr. Sajous, on account of pressure of other engagements, has resigned the deanship of the Medico-Chirurgical College and has withdrawn from the faculty. Dr. Seneca Egbert was elected dean and secretary of the faculty.

Reception to the County Medical Society.—Dr. James Tyson, President of the County Medical Society, followed the very pleasant custom, introduced several years ago, of giving a reception to the members of the County Medical Society at the close of his term as president. Dr. Tyson's reception was given at the Hotel Bellevue on the 8th inst., and was largely attended. Among the out-of-town guests were Dr. Flint of New York and Dr. Howard A. Kelly of Baltimore.

CHANGE OF ADDRESS.

Avery, S. J., from 34 Washington to 780 Walnut St., Chicago.
Curry, Wm., from Palmyra to Burr, Neb.
Craig, D. W., from 1102 N. Halsted to 985 N. Halsted St., Chicago.
Gibbons, J. H., from 2052 Locust to 324 S. 19th St., Philadelphia, Pa.
Greenebaum, E. C., from 468 E. 42d St. to 29th and Groveland Ave., Chicago.
Gihon, A. L., from 233 5th Ave. to 101 E. 25th St., New York.
Hoge, M. D., Jr., from 7 N. 8d to 308 E. Grace St., Richmond, Va.
Lemon, C. H., from 449 Farrell to 465 Murray Ave., Milwaukee, Wis.
Meany, W. B., from St. Louis, Mo., to 1608 Fourth Ave., Louisville, Ky.
Mullen, T. R., from Marcus, Iowa, to Eddy Bldg., Bloomington, Ill.
Murray, S. J., from 207 Washington Park, Brooklyn, N. Y., to Charlestown, N. Y.
Mattison, F. C. E., from Chicago to Pasadena, Cal.
Peterson, R., from Grand Rapids, Mich., to 4621 Woodlawn Ave., Chicago.
Silverberg, G. M., from 465 Marshfield to 314 Center Ave., Chicago.
Taylor, J. T., from Acworth to Bedford, N. H.
Yeager, F. N., from 2400 Oxford to 2826 Oxford St., Philadelphia, Pa.

LETTERS RECEIVED.

Allen, J. B., Cambridge City, Ind.; Arlington Chemical Co., Yonkers N. Y.; Aronson, E., Dallas, Texas; Allport, Frank, Chicago; American Therapeutic Co., New York; Adcock, J. A. B., Warrensburg, Mo.
Brown, J. E., Columbus, Ohio; Bennett, J. W. (2), Brook Haven, Miss.; Bulletin Mercantile Co., Hornellsville, N. Y.; Bryce, P. H., Toronto, Canada; Becton, Dickinson & Co., New York; Barnes & McFarland, Stamford, Conn.; Boyers, J. S., Decatur, Ind.
Cullen, G. I., Cincinnati, Ohio; Cukier, X., New York.
Dodd, F. B., Waucoma, Iowa; Douglas, D. E., Quercus Grove, Ind.; Dorman, H. W., Ashtabula, Ohio.
Elliott, H. G. (2), New York; Eidenmuller, W. C., San Francisco, Cal.; Eastman, Joseph R. Indianapolis, Ind.; Emerich, K. L., Cleveland, Ohio.
Fenn, C. M., San Diego, Cal.
Grube, John E., Braddock, Pa.; Greaves, W., Northfield, Minn.; Green C. C., Beaver City, Neb.; Greene, F. M., Lexington, Ky.; Greene, B. E.

New York; German-American Bottling, Brewery, Wine and Distillery Co., Frankfort-on-Main, Germany; Gessner, H. B., New Orleans, La.

Hummel, A. L., Advertising Agency, New York; Hektoen, L., Chicago; Hopkins, J. N., Burnt Prairie, Ill.; Hattendorf, Louis, 54 E. 109th St., New York; Hawkins, T. H., Denver, Colo.; Haas, Edw. H., St. Paul, Minn.; Hare, H. A., Philadelphia, Pa.; Hatch, Theo. L., Owatonna, Minn.

Ingals, E. Fletcher, Chicago.

Johnson, S. S., Starbuck, Wash.; Jackson, Edward, Philadelphia, Pa.

Keen, W. W. (2), Philadelphia, Pa.; Kerr, Norman, Chicago; Knopf, S. A., New York.

Lumley, W. A., Renville, Minn.; Loveland, B. C., Clifton Springs, N. Y.; Leal, Manuel T., Mexico, Mexico; Lehn & Funk, New York.

Murphy, J. M., Arcadia, Ind.; Mariani & Co., New York; Mattice, R. I., Omaha, Neb.; McCray, F. H., Schaller, Iowa; McGillicuddy, T. J., New York; Miles, A. J., Cincinnati, Ohio; Medical and Surgical Reporter, Toledo, Ohio; Mulford, H. K., Company, Philadelphia, Pa.; Moss, H. P., Parkersburg, W. Va.; Mullen, T. R., Bloomington, Ill.; Mattison, C. E. Chicago.

Newman, W. H., Grinnell, Iowa.

Osbaldeston, J. T., Detroit, Mich.; O'Ferrall, R. M., Piqua, Ohio.

Perkins, L. J., Pendleton, Ore.; Parker, A. A., Omaha, Neb.; Pancoast, J. W., Philadelphia, Pa.; Parrish, J. C., Vandalia, Mo.

Roush, William, Spencerville, Ohio; Robertson, Lee C., Dunkirk, N. Y.; Reynolds, Albert, Clinton, Iowa; Ritchey, J. B., Allegheny, Pa.; Rosenthal, Edwin, Philadelphia, Pa.; Roop, J. W. (2), Petersburg, Ark.; Rhodes, L. J., Plainfield, Wis.

Sargent, J. P., Stockton, Cal.; Schering & Glatz (2), New York; Sternberg, G. M., Washington, D. C.; Stearns, F. & Co., Detroit, Mich.; Stubbers, J. E., Liberty, N. Y.; Schultz, E. F., Milwaukee, Wis.; Seidler, W. F., Newark, N. J.; Stevens, C. S., Athens, Ga.; Shastid, T. H. (2), Battle Creek, Mich.; Swantees, S. F., Madison, Wis.; Stearns, Frederick & Co., Detroit, Mich.; Strong, Mrs. O. D., Fort Atkinson, Wis.

Tannenbaum, S. A., New York; Thompson, U. M., Wilmington, Del.; Thomson, T. Ferguson, Milwaukee, Wis.

Veasey, Clarence A., Philadelphia, Pa.; Vandervoort, J. W., Harveysburg, Ohio.

Wakely, T. A., Jacksonville, Ill.; Webster, W. B., Schuylerville, N. Y.; Woodbury, Frank, Philadelphia, Pa.; Worden, J. E., Chicago; Watson, W. S., Matteawan, N. Y.

PAMPHLETS RECEIVED.

Address in Ophthalmology. By J. E. Willetts. Paper, 22 pages. Reprinted from Pa. Med. Jour.

Alcohol as a Medicine; Appendicitis; Are We as Physicians Doing Our Duty to the Public in Matters Pertaining to Heredity? Immediate Operations; Medical Laws of Tennessee; Medical Legislation; Morphinism in its relation to the Sexual Functions and Appetite, and Its Effect on the Offspring. By T. J. Happel. Reprints.

Alcoholism in Women; Its Cause, Consequence and Cure. By Agnes Sparks. Paper, 8 pages. Reprinted from Medico Legal Jour.

Angina Pectoris; Case of Carcinoma of Descending Colon; Excision and Anastomosis, Recovery; Case of Leucemia; Clinical Study of Widal's Serum Diagnosis of Typhoid Fever; Disappearance of Endocardial Murmurs of Organic Origin. By J. H. Musser. Reprints.

Annual Reports of the State Board of Medical Examiners of Tennessee, I. vii. Paper.

Antivenene in the Treatment of Leprosy. By Isadore Dyer. Paper, 24 pages.

An Unusual Phyto-Bezoar. By Wm. Trelease. Paper, 8 pages. Illustrated.

Appendicitis, My Recent Work In. By A. C. Bernays. Paper, 15 pages. Reprinted from St. Louis Med. and Surg. Jour.

Aseptic Celiotomy, results of; Treatment of Intraligamentous and Retroperitoneal Uterine Myomata; Treatment of Uterine Myomata and Diseases of the Uterine Adnexa per Vaginam; Umbilical and Ventral Hernia; Vaginal Hysterectomy. By W. H. Wathen. Reprints.

Atropin Rhinitis; Hereditary Deafness. By Lewis S. Somes. Reprints.

Cholelithotomy, Report of Seven Cases; Surgical Technique of Operations for Pus in the Pelvis; Twenty-five Consecutive Successful Supravaginal Hysterectomies for Fibroid Tumors. By I. S. Stone. Reprints.

Circular Resection of Pylorus, Cecum with Ascending Colon and Sigmoid Flexure. Report of Cases. By J. J. Buchanan. Paper, 6 pages. Reprinted from Annals of Surgery.

Clinical Value and Chemic Results of Using Prof. Gaertner's Mother Milk for Children. By Louis Fischer. Paper, 24 pages; charts. Reprinted from Med. Record.

Contusions of the Lids, Treatment of. By Charles H. May. Paper, 8 pages. Reprinted from Med. Record.

Cornea and the Cautery, The; Ophthalmic Science in its Application to School Hygiene. By C. S. Rodman. Reprinted from Med. Record.

Dermatitis Herpetiformis, Presenting Many of the Features of Impetigo Herpetiformis; Report of Seven Cases of. By J. A. Fordyce. Paper, 12 pages. Illustrated. Reprinted from Jour. of Cut. and Genito-Urinary Dis.

Diagnosis by Inspection in the Urinary Tract; The Origin of Corpora Amylacea in the Prostate Gland. By J. R. Eastman. Reprints.

Differential Diagnosis of Ascites. By A. R. Edwards. Paper, 12 pages. Reprinted from Medicine

Element of Fear in Hemoptysis. By W. T. English. Paper, 14 pages. Reprinted from Pa. Med. Jour.

Endemic Multiple Neuritis (Beriberi), By E. D. Bondurant. Paper, 38 pages. Illustrated. Reprinted from N. Y. Med. Jour.

Evolution and Perfection of the Aseptic Surgical Technique; The Operation Itself in Appendicitis. By L. S. McMurtry. Reprints.

Feasibility of Controlling Pernicious Vomiting by Means of Intubation of the Larynx with a Specially Adapted Tube. By C. L. Green. Paper, 4 pages. Reprinted from Br. Med. Jour.

Histologic Basis of the Neuron Theory. By D. I. Wolfstein. Paper, 35 pages. Illustrated. Reprinted from Lancet Clinic.

Hysteria Simulating Organic Disease of the Brain; Nervous Disorders Simulating Peritonitis; Respiratory Paralysis from Hemorrhages Around the Medulla. By S. D. Hopkins. Reprints.

Indications for Examination of the Uterus and the Treatment of Certain Conditions Immediately Following Childbirth. By H. D. Fry. Paper, 12 pages. Reprinted from Am. Jour. of Obstet.

Is There a Daily Rhythm in Epilepsy? By A. F. Witmer. Paper, 10 pages; charts. Reprinted from Med. and Surg. Rep.

John Crerar Library; Annual Report for 1895 and for 1896. Paper. Chicago: 1897.

Law Regulating the Practice of Medicine and Surgery in Idaho. Paper, 12 pages. Boise, Idaho: 1897.

Leadville Campaign, The; New Apparatus for the Fixation of Bones after Resection and in Fractures with a Tendency to Displacement. By Clayton Parkhill. Reprints.

Ligation of the Dorsal Vein of the Penis for Impotency. By E. E. Tracy. Paper, 7 pages. Reprinted from Med. Standard.

Malarial Fevers, Exact Treatment of. By C. D. Slagle. Paper, 12 pages. Reprinted from Ther. Gaz.

Malignant Papillary Dermatitis with Especial Reference to its Pathology. By F. H. Wiggin and J. A. Fordyce. Paper, 14 pages. Illustrated. Reprinted from N. Y. Med. Jour.

Massage Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham. Paper, 12 pages. Reprinted from Am. Jour. of the Med. Sciences.

Operative Treatment of Anchylosis of the Shoulder Joint; Simultaneous Double Aneurysm. By E. Souchon. Reprints.

Plica Polonica. By F. E. Fronzak. Paper, 40 pages. Reprinted from St. Louis Med. and Surg. Jour.

Progress of Laryngology; Treatment of Laryngeal Tuberculosis with Cupric Interstitial Cataphoresis; Transillumination in Diseases of the Nose, Throat and Ear. By W. Scheppegrell. Reprints.

Psychiatry in the Southern States. By T. O. Powell. Paper, 58 pages. Reprints from Proceedings of Am. Medico-Psychologic Association.

Rabies; Hydrophobia. By T. R. MacClure. Paper, 51 pages. Reprinted from Proc. of Sanitary Convention, Charlotte, Mich., 1894.

Radical Cure of Inguinal Hernia. By J. M. Banister. Paper, 16 pages. Reprinted from Proc. of seventh annual meeting of Association of Military Surgeons of the United States.

Resection and Advancement of the Levator Palpebræ Muscle in Traumatic Ptosis. By C. A. Oliver. Paper. Reprinted from Univ. Med. Mag.

Rheumatic Affections of the Throat and Nose. By G. E. Seaman. Paper, 14 pages. Reprinted from Milwaukee Med. Jour.

Silber als Aeusseres und Inneres Antiseptum. Von Dr. Credé. Paper, 13 pages. Reprinted from Archiv für klin. Chir.

Skiagraphic Dermatitis. By J. Y. Dale. Paper, 6 pages. Reprinted from Med. News.

So-called Hot Air Treatment of Painful and Partially Ankylosed Joints and an Experimental Investigation of the Physiologic Effect of the Local Application of Hot Air on General Metabolism; Suicide. By C. H. Hughes. Reprints.

Syphilis of the Central Nervous System. By Sidney Kuh. Paper, 28 pages. Reprinted from Alienist and Neurologist.

The Union Label in Theory and in Fact. By S. H. Nichols. Paper, 14 pages. Reprinted from North Am. Rev.

Thyroid Gland Treatment of Cretinism, with Report of a Case. By S. H. Friend. Paper, 16 pages. Reprinted from Med. News.

Treatment of Diphtheria with Diphtheria Antitoxin. By E. Rosenthal. Paper, 43 pages.

Treatment of Retroversion and Providentia Uteri by the Method of Dr. Irish. By Frank Blaisdel. Paper, 15 pages. Reprinted from Atlantic Med. Weekly.

Tuberculin in Dermatology. By A. Ravogli. Paper, 8 pages.

Two Cases of Erythromelalgia. By D. W. Prentiss. Paper, 13 pages.

Urgent Need of Sanatoria for the Consumptive Poor of Our Large Cities. By S. A. Knopf. Paper, 11 pages. Reprinted from N. Y. Medical Record.

Warm Bath, a Modification of Brand's Method, The. By Otto Lerch. Paper, 8 pages, Reprinted from New Orleans Med. and Surg. Jour.

Trade Pamphlets.

Acute Peritonitis; Exophthalmic Goiter; Traumatic Tetanus. St. Louis: Battle & Co.

"Apenta," Reports and Opinions. London: The Apollinaris Co.

Chloralamid. New York: Lehn & Fink,

Daniel's Concentrated Tincture Passiflora Incarnata. Atlanta: J. B. Daniel.

Do Not Stammer. The Philadelphia Institute.

Eureka Springs. Illustrated. St. Louis: Woodward and Turner Printing Company.

Hospital Reports; Carnogen; The 'Marrow Treatment. New York: Am. Therapeutic Co.

Nutrient Preparations as Substitutes for Meat. New York: Victor Koechl & Co.

Somatose. New York: Am. Biscuit and Mfg. Co.

The Country Doctor. By Will Carleton. Illustrated. Yonkers, N. Y.: The Arlington Chemical Co.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from December 22, 1897, to January 7, 1898.

Capt. William O. Owen, Asst. Surgeon, leave of absence granted is extended one month.

Major Louis Brechemin, Surgeon (Ft. Sherman, Idaho), leave of absence granted is extended two months.

First Lieut. Alex. S. Porter, Asst. Surgeon U. S. A., is granted four months' leave of absence.

Major Charles K. Winne, Surgeon (Ft. McHenry, Md.), is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the Department of the East.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), is granted leave of absence for one month, to take effect on or about Jan. 4, 1898, with permission to apply for an extension of two months.

Capt. Charles F. Mason, Asst. Surgeon (U. S. Military Academy, West Point, N. Y.), is granted leave of absence for two months and seven days.

First Lieut. Peane C. Howard, Asst. Surgeon, will be relieved from duty in the Dept. of Dakota when his services are no longer required at Ft. Custer, Mont., and will proceed to Ft. Crook, Neb., and report for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending January 8, 1898.

P. A. Surgeon A. Farenholt, detached from the New York navy yard and ordered to the Puget Sound naval station.

P. A. Surgeon F. W. Olcott, detached from duty at the Puget Sound naval station and ordered to the "Mohican."

Asst. Surgeon T. W. Richards, ordered to examination for promotion January 17 and to the New York navy yard.